A STUDY TO EVALUATE THE EFFECTIVENESS OF STRETCHING EXERCISE IN REDUCING BACK PAIN AMONG ANTENATAL MOTHERS IN SELECTED RURAL AREAS AT COIMBATORE

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A DISSERTATION SUBMITTED TO THE TAMILNADU DR.M.G.R. MEDICAL UNIVERSITY, CHENNAI, IN PARTIAL FULFILLMENT OF REQUIREMENT FOR THE DEGREE OF

MASTER OF SCIENCE IN NURSING

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DEDICATION

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I dedicate this book to

The ***God almighty*** *who blessed me to finish this work successfully.*

I also dedicate this book to

My ***parents*** *Mr. P.THANGADURAI & Mrs. T.LEELAVATHY, for their continued support and counsel throughout my studies and made my life purposeful and meaningful.*

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ABSTRACT

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More than two-thirds of pregnant women experience back pain. This pain generally increases as pregnancy advances and it interferes with daily activities (like carrying, cleaning, sitting and walking). There are certain measures to manage pain. Antenatal exercises are relatively safe, inexpensive, and accessible and have beneficial effects in reducing the back pain during pregnancy.

The statement of the problem is a study to evaluate the effectiveness of stretching exercise in reducing back pain among antenatal mothers in selected rural areas at Coimbatore.

The objectives of the study are

- To assess the level of back pain among antenatal mothers.
- To evaluate the effectiveness of stretching exercise in reducing back pain among antenatal mothers.
- To determine the association between the level of back pain among antenatal mothers with their selected demographic variables and obstetric variables.

Pre-experimental one group pretest post test design was adopted and non probability purposive sampling technique was chosen for this study. The sample consists of 30 antenatal mothers. The study was conducted in selected five villages under Arisipalayam rural PHC Coimbatore.

Data collected by means of structured interview questionnaire - Modified Roland Morris back pain questionnaire to assess the back pain among antenatal mothers. Stretching exercises was demonstrated and made to practice for 2 weeks in alternative days.

The result reveals ‘t’ value was 5.05. It was significant at $p < 0.05$ level. Hence, the stated hypotheses H1 was accepted. It is inferred that stretching exercise was highly effective in reducing back pain among antenatal mothers with back pain.

Key words: Back Pain, Stretching Exercise, Effectiveness

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LIST OF ABBREVIATIONS

- % - Percentage
- n - Frequency
- N - Total number of samples
- H - Hypotheses
- Cont - Continued
- PHC - Primary Health Centre
- BMI - Body Mass Index
- df - Degree of Freedom
- χ^2 - Chi square
- > - Greater than
- < - Less than

CHAPTER-I

INTRODUCTION

"The world is full of suffering and

It is also full of overcoming of it"

Helen Keller

Pregnancy is the most wonderful time for a woman as she awaits the birth of a child and prepares for a new chapter in her life. Giving life is powerful, so preparing a suitable environment for the baby to grow in is a vital necessity of pregnant mothers to maintain comfort by staying healthy physically and mentally as well. This wonderful experience is hindered by back pain which is common among most of the antenatal mothers.

Back pain is one of the minor ailments in pregnancy occurring in varying degree during late months of pregnancy. Three out of four women experience some degree of back pain during pregnancy. The severity of this pain ranges from mild discomfort after standing for long periods of time to deliberate pain that interferes with daily life. The cause of back pain during pregnancy is related to many factors such as change in body posture, hormones that cause the relaxation of connective tissue in the body, poor body mechanics and muscle fatigue.

As the fetus grows mother undergo postural changes that exaggeration of curve in lumbar spine, which not only allows the pelvis to accommodate the enlarged uterus, but also weakens the ability of static support in the lumbar spine to withheld shearing force.

Hormonal changes of pregnancy lead to water retention of connective tissue which produces increased musculoskeletal pain. Relaxin is insulin like hormone that causes pelvic ligaments laxity which is necessary for birth. The effect of relaxin on collagen increases sacroiliac movement and symphysis pubis widening. Relaxin affects all connective tissue throughout the body including ligaments and tendons which supports the joints. Increased flexibility makes mother more susceptible to back pain, as it occurs when enlarging uterus or baby's head presses down on sciatic nerve, overstretching of abdominal muscles and the impact of entire weight of uterus on spine and surrounding muscles.

Collision J (2008) conducted a survey to collect information about pregnancy –related pain among 600 women in India.Out of them two third reported back pain and nearly half of all women reported pain at lower back.The findings revealed that 85 percent of women were having back pain at some point of pregnancy.

Women who exercise usually have a better pregnancy, in terms of being more comfortable physically and healthier for the duration of the pregnancy and afterwards. Stretching exercises are particularly useful for later easy in labor and delivery. It seems to go along with eating better and maintaining more positive attitude towards the pregnancy. As stretching releases endorphins, it also helps with emotional stress

and potential depression. Muscles and connective tissue tend to get shorter and less flexible over pregnancy. Stretching improves flexibility. Stretching routine is very good for toning the perineal area, stretching ligaments, strengthening the inner thighs and abdominal muscles and promotes proper body alignment and which helps for back pain relief.

In simple way the midwife can educate the antenatal mothers about the exercise inorder to alleviate the discomfort, maintain good body posture to adopt appropriate position and get relieved from pain. As the exercise need a time and not money so everyone can be beneficial. Creating awareness is a primary role of a midwife to make antenatal mothers to adopt the newer practices and be beneficial.

Benefits of stretching exercise for pregnant women have been greatly appreciated, which helps in tolerating labor pain emotionally and physically, increases muscle strength, decreases unhealthy weight gain,reduces incidence of hemorrhoids, varicose veins back ache and fatigue causations.Midwives are in the right position to take over the benefits to antenatal mothers and make them healthier and relieved from suffering.

Need for theStudy

"If you are planning for a year, sow rice

If you are planning for a decade, plant trees

If you are planning for a life time educate a person"

Chinese proverb

Back pain and pregnancy seem to go together. Back pain in the course of pregnancy creates problem that continue for an extended period after delivery.Pregnancy produces variety of hormones, one of the hormones called relaxin, causes the ligaments and pelvis to soften to allow baby out through the pelvis, changes the center of gravity, relaxes uterine ligament that cause strain of surrounding muscles and overstretched abdominal muscles not equipped to handle the entire weight of the uterus so that back and spine bear extra burden.

To make pregnancy as pleasant as possible and facilitate an easier delivery, back pain should be always addressed quickly as possible and managed throughout pregnancy.

Peter F Ullrich, (2010) in an article denotes worldwide healthcare statistics of 80% women suffer from back pain at some point of pregnancy.

Skaggs .c. (2007) conducted a descriptive study to determine the prevalence of low back pain among 599 antenatal women in India. A result shows that 67% of antenatal women reported back pain during the third trimester of pregnancy.

Mchenzie, (2005) statistics article represents the incidence of degree of back pain during pregnancy is relatively high. Researchers worldwide have suggested that between 30 - 70% of pregnant women are affected due to back pain. There is a greater need to be met for pregnant women to cope up the lower back pain.

According to KelinkJournal article - US census bureau (2004) country wise back pain statistics during pregnancy denotes in India extrapolated prevalence- 23,494,204 and population estimated to be affected- 1, 065, 070, 6072.

Back pain statistics are frightening 80% of pregnant women suffer from back pain. Worldwide there are 72,258 pregnant women who search on the internet every day for back pain issues, 14,516 for lower back pain and 6483 for sciatica. Upper back pain is at 3548 and neck pain at 14,516. In one year, over 34 million pregnant women searching for back pain related issues.

According to American pregnancy association prevalence varies with reports, showing between 50-70 percent of all pregnant women having back pain.

F.Gary, (2007) conducted an study to evaluate the prevalence of back pain during four different periods of pregnancy. The results are at 12^{th} weeks of gestation 71.4% women had pain, while at 20^{th} week 16.3%, 32^{nd} weeks 91.7% of women reported pain and at 37^{th} weeks 98% reported back pain. Back pain is prevalent during pregnancy and its intensity varies throughout this period.

Damen Leon (2007) conducted descriptive study on complaints of back pain during pregnancy among 123 antenatal women who were questioned and examined with Sacroiliac joint laxity being measured by Doppler imaging at 36 weeks gestation and at 8 weeks postpartum. In 77% of the subjects with moderate to severe pregnancy-related back pain during pregnancy, asymmetric sacroiliac laxity was found to be a factor. The study also showed that patients with sacroiliac laxity during

pregnancy had a threefold higher risk of pain postpartum. In conclusion, this data indicates that women's experience moderate to severe complaints of back pain during pregnancy.

Kristiansson, Per MD (2006) conducted a survey to determine back pain during pregnancy among 200 women throughout pregnancy with repeated measurements of back pain and possible determinants by questionnaires and physical examinations in India. The results showed that 76% reported back pain at some time during pregnancy. 61% reported its onset during the present pregnancy. In this group, the rate of pain increased until the 24th week, and then remained stable until delivery, with decline in pain by 10% after delivery. This study concludes, back pain during pregnancy is a common complaint and client with the highest pain ratings reported great difficulties with normal activities. The back pain started early in pregnancy and increased over time.

Every pregnant woman experiences some type of back pain that gives uneasiness and discomfort.Exercise during pregnancy is very important for a healthy child and mother. The first requirement for exercise is to prepare body for childbirth. Pregnancy exercises such as stretching exercise strengthen muscles, relaxes iliacsacral ligaments and deliberate lengthening of muscles in order to increase muscle flexibility and joint range of motion.

Although it may seem enticing to rest when experiencing pain and not undertake an exercise routine, gentle stretching and movement will often decrease muscle spasm and restore improved spinal function result in decreased pain.

Every pregnant woman can benefit from stretching the soft tissue – the muscles, ligaments, and tendons in the back, legs, buttocks, and around the spine. The spinal column and its contiguous muscles, ligaments, and tendons are all designed to move, and limitation in this motion can make back pain worse.Stretching and back exercises to mobilize the spine and soft tissue find meaningful and sustained relief of back pain followed by the increase in motion.

Stretching in pregnancy helps to protect the freedom of movement, prevent muscle injury, keep the muscles and joint strong and flexible, counterbalance the biochemical effect, bring oxygenated blood into muscles, give more energy and helps to flush out toxins and lactic acid , help to cope with psychological and emotional stress of pregnancy and experience less muscle soreness. Stretching during pregnancy properly with deep breathing brings more oxygen to baby and help in growth.

According to Mayo clinic, benefits of stretching include increased flexibility, improved circulation, better posture, stress relief and enhanced co ordination.

Garshashi., A. et.al (2004) conducted a prospective randomized study on the effect of stretching exercise on the intensity of low back pain , 107 pregnant women in experimental group and 105 in control group during 2nd half of pregnancy provided stretching exercise for 3 times a week for 2 weeks. kebekback pain questionnaire was used between 17-22 wks of gestation to assess back pain intensity, lordosis and flexibility of spine were measured by flexible ruler and side bending test. The study shows that low back pain increased in control group. Researcher concludes stretching exercise during 2nd half of the pregnancy shows reduction in the intensity of low back

pain in experimental group, has no detectable effect on lordosis and significant effect on flexibility of spine.

The review of literature and working area created an insight in the investigator's mind that an equal importance to be given for exercise as diet and supplements during pregnancy. Several studies have proven back pain is one of the minor ailment seen during 28-38 weeks of gestation age in pregnancy and also several article reported stretching a exercise relieve back pain. Nurse midwife plays an important role to promote antenatal care and to prevent the pregnancy related problem earlier and hence forth to bring a healthy mother and healthy baby.Stretching exercise also one therapyon reducing back pain. So the investigator felt to perform research on stretching exercise reduces back pain among antenatal women.

Statement of the Problem

A Study to Evaluate the Effectiveness of Stretching Exercise in Reducing Back Pain among Antenatal Mothers in selected Rural Areas at Coimbatore.

Objectives

- To assess the level of back pain among antenatal mothers.
- To evaluate the effectivenessof stretching exercise in reducing level of back pain among antenatal mothers.
- To determine the association between the level of back pain among antenatal mothers with their selected demographic variables and obstetric variables.

Hypotheses

- H1: There will be significant difference between mean pretest and posttestlevel of back pain among antenatal mothers.
- H2: There will be significant association between the level of back pain among antenatal mothers with their selected demographic variables and obstetric variables.

Operational Definitions

Antenatal Mother:

It refers to pregnant women between the gestational age of 28 to 38 weeks.

Effectiveness:

It refers to the outcome of stretching exercise in terms of reducing level of back pain among antenatal mothers which can be measured using Modified Roland Morris Back pain questionnaire.

Back pain:

It refers to posterior pelvic pain experienced by antenatal mothers in the lower back below the waist line around the coccygeal region which can be assessed through activities of daily living by using modified Roland Morris back pain questionnaire .

StretchingExercise:

It refers to the gentle tensing and relaxing the transverse abdominal muscles and spine by kneeling on knees and hands pulling in abdomen to arch spine upward and downward.

Assumptions

- Stretching exercise reduce the back pain among antenatal mothers
- Stretching exercise promotes comfort and positive health in antenatal mothers.

Delimitations

- The study is limited to the antenatal mothers of 28 to 38 weeks of gestation with back pain in selected rural areas.
- The data collection period is limited for six weeks.

Projected Outcomes

- This study will help inassessment of back pain among antenatal mothers.
- This study will help to assess the effectiveness of stretching exercise among antenatal mothers with back pain
- This study enables nurses to teach stretching exercise during their antenatal care.

CHAPTER II

REVIEW OF LITERATURE

The review of literature is a key step in the research process. Review of literature refers to an extensive exhaustive and systematic examination of publications related to the research project.The typical purposes of review of literature are to generate research questions, to identify what is known and not known about the topic, to identify a conceptual and theoretical tradition within the bodies of literature, and to determine methods of enquiry used in earlier work including their success and short comings.

Reviewof Literature done for this Study is arranged under the following Headings:

- ✓ Studies related to back pain during pregnancy.
- ✓ Studies related to effectiveness of stretching exercise during pregnancy.
- ✓ Studies related to effectiveness of stretching exercise in reducing back pain among antenatal mothers.

Studies Related to Back Pain during Pregnancy

Dong Adair et.al (2002) conducted a cohort survey to evaluate the self reported disability due to low back pain during pregnancy in Tamilnadu. The analytical study was done to determine the severity of self reported disability.The Oswestry low back pain questionnaire was used. Result reveals 10.247 % reported

mild disability, 37.809 % reported moderate disability, 17.314 % reported severe disability and 2.120 % reported complete disability .The researcher said that the majority of pregnant women experiences low back pain during their pregnancy.

Tonali P et.al (2004) conducted a survey among pregnant mothers in last trimester to assess back pain. Seventy-six women in their 8th and 9th months were studied by using the Italian validated version of the Roland Questionnaire.The study found that 31% of the women had no back pain symptoms (Roland score 0); 40% scored from 1 to 4; 21% scored from 5 to 10; and 8% scored more than 10. Findings revealed that back pain is a common symptom in women during last trimester of pregnancy.

Clayton et.al (2007) conducted a survey among pregnant women's to identify the prevalence of back pain and treatment satisfaction in the second trimester. Cross-sectional design was used. 599 women were selected. Pain history, duration, location, intensity, daily living and treatment frequency were assessed. 67% of the total population reported musculoskeletal pain and nearly half with a multi-focal pattern of pain. 21% reported severe pain intensity rated on a numerical rating scale. 81% of women experiencing pain slept less than 4 hours per night and 75% of these women took pain medications. The study reveals multi-focal musculoskeletal pain in pregnancy was prevalent.

AnnelieGutke et.al (2008) conducted a survey to investigate the association of muscle function and low back pain in relation to pregnancy. Progressive cohort research design was used.The sample selected in gestational weeks of 12-18 (n=301)

and 3 months post partum (n=262).Low back pain is more prevalent in pregnant women (25%) than in the general population (6.3%). Researcher concluded the study findings that muscle dysfunction was associated with pelvic girdle pain, which should be taken into consideration when developing treatment strategies and preventive measures.

Mohseni - Bandpei MA et al (2009) conducted an cross sectional study to determine the prevalence and risk factors of low back pain during pregnancy from 18 health centers. Eleven hundred randomly selected pregnant women were participated in this study Visual Analog Scale and Oswestry low back disability questionnaires were used to assess the pain intensity and functional disability. Lifetime prevalence of low back pain were 40.2%, 55.9%, 59.4%, 76.2%, and 84.1%, respectively.Low back pain was significantly correlated with history of previous low back pain and low back pain in previous pregnancy (p=.000 in both cases). It was found that the prevalence of low back pain in pregnant women appears to be high.

Wang et.al(2009) conducted an anonymous survey among pregnant mothers to estimate the severity of the low back pain, including prevalence, risk factors, impact on daily living, and health provider management in New Haven Country. Randomized trial was used by distributing 36 questions to pregnant women participating in various prenatal care clinics. Six hundred and forty-five respondents reported experiencing low back pain during their current pregnancy. Low back pain during the current pregnancy was predicted by age (younger women were more likely to develop it; P = .004), history of low back pain without pregnancy (P = .002), during menstruation (P = .01) and during a previous pregnancy (P = .002). The findings of the study states

low back pain during pregnancy is a common problem.Researcher recommends further studies can be indicated in the areas of prevention and treatment measures for back pain.

Ayanniyi et.al (2009) conducted a survey among pregnant women to examine the prevalence and pattern of back pain (BP) in pregnancy. Pre-tested closed-ended questionnaire was used. Data obtained was analyzed using both descriptive and inferential statistics of mean, standard deviation, and inferential statistics of independent t-tests and chi-square tests. One thousand and eight (52.5%) of the included subjects had back pain in pregnancy. The mean age of those with and without back pain was 26.8 ± 5.3 and 27.1 ± 5.4 years respectively. Among the subjects with back pain, 315 (31.3%) and 53 (5.3%) were in their first and sixth pregnancies. It was concluded that back pain is a common and real complaint in pregnancy. It recommended that back pain in pregnancy should be attended to as part of ante-natal care.

Ayden Coban et.al (2009) conducted an cross sectional study to evaluate the impact ofpregnancy-related back pain on quality of life and physical ability in the third trimester of pregnancy. One hundred women in the 28th-40th week of pregnancy were asked to fill out questionnaires including general questions about background factors, the Katz's Activity's Daily Living Index and Short Form of WHO Quality of Life Questionnaire.Back pain intensity was assessed by visual analog scale (VAS) and functional limitation was measured by Oswestry Low Back Disability Questionnaire (OSW). Result found that pregnant women with back pain (PBP) have an impact on quality of life but decreased physical ability.

Quaresma C et.al (2010) conducted a longitudinal study among antenatal mothers to evaluate the prevalence of back pain during four different periods (12 weeks, 20 weeks, 32 weeks and 37 weeks) of pregnancy. The sample selected using cluster randomized trial. Samples comprises of 49 pregnant women aged between 20 and 39 years. Back pain symptoms and severity were evaluated using NIH Record Activity. The ANOVA was used and significant difference between the pain scores over the four moments were observed, that at 12 weeks of gestation 71.4% of women had back pain, while at 20 weeks only 16.3% confirmed pain. At 32 weeks 91.7% of women reported pain and at 37 weeks, 98% reported the same. This research result reveals that back pain is prevalent more in 32 weeks and maximum at 37 gestational weeks of pregnancy.

Ansari N et.al (2010) conducted an cross-sectional study to ascertain the prevalence of low back pain during pregnancy and compare to other ethnic/cultural groups and identify risk factors associated with low back pain during pregnancy. One hundred and three women were interviewed in the obstetric ward of a university hospital within 48 hours after giving birth. Results states that the prevalence of low back pain during pregnancy was found to be 57.3%. Pain onset was most frequently reported in the third trimester of pregnancy (40.7%) and in the low back area (71.2%).

Studies Related to Effectiveness of Stretching ExerciseduringPregnancy

Yeo (2006) conducted an experimental study among pregnant women's to evaluate the effectiveness of walking and stretching during 18th week of pregnancy. 79 women with previous history of preeclampsia were randomly assigned to the walking group (41 women) and the stretching group (38 women) .The stretching

exercise was performed 5 times a week for 40 minutes. At the end of pregnancy, almost 15 percent of women in the walking group had developed preeclampsia. Less than 5 percent of the stretching group developed preeclampsia. The result reveals that stretching provides protection against preeclampsia because stretchers produce more transferring than walkers. Transferring is a plasma protein that transports iron through the blood and protects against oxidative stress on the body.

Cruz Jimenez M et.al (2006) conducted a prospective pilot study among antenatal women to determine a structured exercise program promotes improved performance on activities of daily living and pain perception in patients with chronic low back pain. The therapeutic program consisted of warm up cool down calisthenics, stretching, back isometric and stabilization exercises and aerobic walking. Visual Analog Scale and the Quebec Back Pain Disability Scale were used. Six antenatal women completed the study. Back pain intensity and functional disability decreased immediately after completing the program. A well guided stretching exercise program can decrease pain intensity perception and disability in women's with chronic low back pain.

Tollison CDet.al (2007) conducted an experimental study among pregnant women to assess the effects of physical exercises stretching and walking for 50 sedentary pregnant women at risk for preeclampsia. The stretching exercise as a comparator, multiple ways to measure daily physical activities and the exercise intervention was used. The intervention of 20 min stretching and 10 min of walking five times a week from 18 weeks gestation until birth. The primary outcome is the

reduction of 25 % incidence of preeclampsia. Secondary outcomes include the 76.4 % of improvement in physiologic effects of the intervention and birth outcomes.

Ylinen J et.al (2008) conducted an experimental study on pregnant women to compare the effects of manual therapy and stretching exercise on neck pain and disability. A randomized cross-over trial used and sample of 125 pregnant women was selected. Group 1 consist of 60 mothers received manual therapy twice weekly for 4 weeks and Group 2 of 65 mothers performed stretching exercises 5 times a week for 4 weeks. Visual analogue scale was used to assess pain and it found decreased during the first 4 weeks by 26 mm and 19 mm, respectively in group 1 and group 2. Both stretching exercise and manual therapy decreases neck pain and disability. Low-cost stretching exercises can be recommended in the first instance as an appropriate therapy intervention to relieve pain.

Linda Mary et.al (2009) conducted an experimental study among antenatal mothers to determine the benefit of mother and babies from stretching exercise during pregnancy at Kansas City University. The pretest and post test design was used. The sample was 10 antenatal mothers. Exercise were taught to mother and practiced for 8 weeks .Finally researcher concluded that maternal stretching exercise is instrumental in healthy development of baby's heart.

Montoya Arizabaleta AV (2010) conducted an experimental study among pregnant women to assess the effectiveness of stretching exercise in improving health-related quality of life during pregnancy in nulliparous women at 16 to 20 weeks of gestation. Randomized control trial was used. 64 pregnant women were

involved. Intervention included are walking (10 min), aerobic exercise (10 min), stretching (30 min) and relaxation (10 min). The control group continued usual activities. Columbia version of medical outcome health survey done.Fifty women completed the study. Stretching exercise improved the health-related quality of life in experimental group.

SeonAe Yeo et.al(2010) conducted an experimental study among pregnant women's to compare the effects of walking exercise to a stretching exercise on the preeclampsia risk factors. A randomized trial was conducted with 124 sedentary pregnant women. For sedentary pregnant women, a stretching exercise was effective than walking in mitigating the risk of preeclampsia, heart rate and blood pressure were lower among stretchers than walkers, but weight gain did not differ between the groups.

Sankaralingam et.al (2011) conducted a randomized experimental study among 124 pregnant women. Simple stretching exercises, consisting of slow muscle movements compared with 40 mins of walking performed 5 times a week starting at 18 weeks of gestation till birth. The result reveals that stretching reduces risk of early signs of preeclampsia compared to walking.

LeanHaakstad et.al (2011) an experimental study among nulliparous pregnant women to assess stretching and aerobic exercises improves quality of life. The pregnant women's (N = 105), with mean age 30.7 ± 4.0 years, pre-pregnancy BMI 23.8 ± 4.3 were randomized to either an exercise group (n = 52) or a control group (n = 53). The exercise program consisted of supervised aerobic dance and stretching

training for 60 minutes, twice per week for a minimum of 12 weeks, with an additional 30 minutes of self-imposed physical activity. Researcher concludes aerobic-dance exercise and stretching exercise improves physical quality of life among experimental group pregnant women's.

StafneF et.al (2012) conducted a experimental study to assess whether exercise during pregnancy can prevent gestational diabetes and improve insulin resistance.A randomised control trial was used.855 women in gestational week 18–22 were randomly assigned to receive a 12-week standard exercise program (intervention group) or standard antenatal care (control group).The exercise program – stretching included moderate-intensity to high-intensity activity 3 or more days per week. Exercise group revealed the prevention of gestational diabetes and improves insulin resistance in healthy pregnant women with normal body mass indexes.

Studies Related to Effectiveness of Stretching Exercise in reducing Back Pain among Antenatal Mothers

Requejo SM et.al (2002) conducted an experimental study among 28 years primigravida pregnant women's in 20th week of gestation with low back painto describe the effectiveness of stretching in the evaluation and treatment of a pregnant women with low back pain.A randomized trial was conducted with 40 mothers. Manual joint mobilization (stretching) was applied to the symptomatic vertebral segment for 4 times in 2 weeks for 20 minutes. Researcher found that after treatments, the mothers were able to bend forward without pain, sit longer than 1 hour without discomfort and work with minimal discomfort.This study found stretching exercise an effective manual technique in the treatment of pregnant women with back pain.

Shim M J et.al (2005) conducted an experimental study among pregnant mothers to evaluate the effectiveness of stretching exercise program in reducing back pain. A non-equivalent control group pretest posttest design was used. In an intervention group (n=29) their intensity of back pain, functional limitation and anxiety were compared with women in a control group (n=27). At 12 weeks after intervention, the intensity of back pain experienced by the intervention group (34 %) was significantly lower than that of the control group (68 %). The findings showed that the stretching exercise program was effective in reducing the intensity of back pain experienced by pregnant women.

FaghihZadeh et.al (2007) conducted an experimental study among pregnant women of 17-22 weeks with back pain to investigate the effect of back stretching exercise during pregnancy on the intensity of low back pain and kinematics of spine. A prospective randomized study was used. 107 women participated in an exercise program three times a week during second half of pregnancy for 12 weeks and 105 as control group. Kebekquestionnaire provided between 17-22 weeks of gestation and 12 weeks later for assessment of their back pain intensity. The researcher found exercise group showed 90% reduction in the intensity of low back pain after exercise.

Dumas G.A et.al (2007) conducted an experimental study among pregnant women with back pain to determine the effect of stretching exercise on pregnancy related back pain. Randomized controlled trial method was used.Sixty five pregnant volunteers were included in the study in which 27 were in exercise classes. Back pain and functional limitations were assessed every 4 weeks during pregnancy and 4 months postpartum by Roland questionnaires. Exercise program practiced for 10

weeks. The strengthening exercises and sitting pelvic tilt exercises was provided. Exercise group significantly improved and showed reduced pain intensity and back pain.

GustafssonJet.al (2008) conducted an experimental study in among pregnant women with back pain to determine the effectiveness of stretching exercise in reducing back pain. A cross sectional study was used as a study design. A specific deep muscle training of the transverses abdominus and multifidus muscles was given for 10 pregnant women with back pain. Pain was rated based on the visual analogue scale and Disability Rating Index. The analysis done with standard deviation band test. The visual analysis showed a trend towards reduced pain for all 10 subjects. The findings revealed that the stretching exercise reduces back pain in pregnant women.

Albaladejo Cet.al (2008) conducted experimental study among clients with back pain to determine the effectiveness of short education program and short physiotherapy programs in primary care. Research design cluster randomized clinical trial was used. Sixty-nine was randomly assigned to 3 groups. In experimental group all were given a booklet and 15 minutes group talk on postural hygiene. Control group as an active management 15 minutes group talk on postural hygiene and 4 hour physiotherapy program that includes exercise and stretching were given. After 6-month follow-up period, Roland Morris questionnaire and visual analog scale used and found there was no improvement in the "control" group and improvement in the experimental groups was found for disability (2.0 and 2.2 Roland Morris Questionnaire points) low back pain (1.8 and 2.10 Visual Analogue Scale points), physical quality of life (2.9 and 2.9 SF-12 points), and mental quality of life (3.7 and

5.1 SF-12 points). Research revealed that active management to usual care leads to improvements in disability, pain and quality of life.

Schoultz et.al (2011) conducted an experimental study to assess the specific exercise program stretching decreases back pain intensity and increases functional ability during pregnancy on 50 antenatal mothers between 16-24 weeks of gestation. 26 antenatal women were randomized to 10 week exercise program and 24 randomized as controls.Women in the exercise group experienced significant improvement in pain intensity and improvement in functional ability at the end of the study. In the control group, there were no significant changes in pain intensity or functional ability at the end of the study.

CONCEPTUAL FRAMEWORK

Tabot (1995) stated that a conceptual framework is a network of interrelated changes that provide a structure for organizing and describing the phenomenon of intersect. Research studies are based on the theoretical or conceptual framework that facilitates visualizing the problem and places the variables in a logical manner.

The present study aims at evaluating the effectiveness of stretching exercise in reducing back pain among antenatal mothers with back pain.Conceptual framework for this study was developed on the basis of Larson et.alTheory of Symptom Management.

The theory was initially published as the Symptom Management Model in 1994 as a collaborative effort by members of the Symptom Management Faculty Group at the University of California at San Francisco.The result of their efforts was the development of a deductive, process focused model addressing 3 interactive components of symptom management: symptom experience, symptom management strategies and outcomes.The model was further updated in 2008 and renamedas the Symptom Management Theory. This revised model places the process of symptom management within the context of the domains of nursing science: the person, environment, health and illness.

Symptom Experience

The symptom experience component has 3 aspects. It is the most thoroughly described component of the model and is depicted as the beginning of the symptom management process. This dimension consists of the individual's perception, evaluation and response to a symptom. Perception means the client perceived as distressing and it interferes with sufficient frequency and severity overtime. That evaluated using a suitable tool. Responses of perception and evaluation are noted.

In present study symptom perceived by antenatal mothers was back pain that felt over 28-38 week of gestation evaluated using Modified Roland Morris back pain questionnaire as mild, moderate, and severe and responses as disturbances in activities of daily living due to back pain.

Symptom Management Strategies

This components are described as the "what, where, why, how much, to whom, and how" which guide the clinician or investigator in selecting appropriate intervention strategies and are intended to "avert, delay or minimize the symptom experience". The present study conducted in Arisipalayam rural area and the intervention stretching exercise was provided to antenatal mothers of 28-38 weeks of gestation for 2 weeks in alternative days of 6 days.

Symptom Status Outcome

Symptom status outcome were clear and measurable outcomes to assess the implementation of the strategy. The improvement in symptom leads to better physical and mental functioning and improving quality of life.The current study outcome

strategy include symptom of level of back pain which got reduced and activities of daily living improved.

Dimensions

The dimensions of nursing science include the person, health and illness, and environment dimensions and all influencing each of the dimensions of symptom management.

Person Dimension

The person dimension encompasses variables “intrinsic to the way an individual views and responds to the symptom experience”. These include demographic, psychological, sociological, physiological and developmental variables. The present study demographic variable includes age, education, type of family, occupation, BMI and obstetrical variable of parity and gestational age.

Environmental Dimension

The environment encompasses physical, cultural and social variables representing the “aggregate of conditions” in which a symptom is occurring. Physical variables may include the individual’s home, work or the hospital setting. Social variables include an individual’s interpersonal relationships or sources of social support. Cultural variables represent values, practices, and beliefs that arise from the individual’s racial, ethnic, or religious group. In present study intervention were provided to antenatal mothers in homes of rural areas Serapalayam, Meenakshipuram, Kannamanaikanur, Valukuparai and Palathurai under Arisipalayamrural PHC. Antenatal mothers were co-operative and willing to perform stretching exercise.

Health and Illness

The health and illness dimension includes those variable “unique to the health or illness state of an individual”. These are identified as risk factors, health status, and disease and injury.In present study health status of antenatal mothers was back pain.

Relationship among the Concepts

The bidirectional arrow illustrated depicts associational relationships among the 3 components of symptom management. Associational relationships also are depicted among the 3 aspects of the symptom experience.Adherence denotes the intended recipient actually receives the strategy prescribed.The breakdown is illustrated by the broken arrows. Non-adherence denotes the intervention or too demanding are not applied or applied inconsistently. In present study adherence is seen for all antenatal mothers who performed stretching exercise during the interventional period.

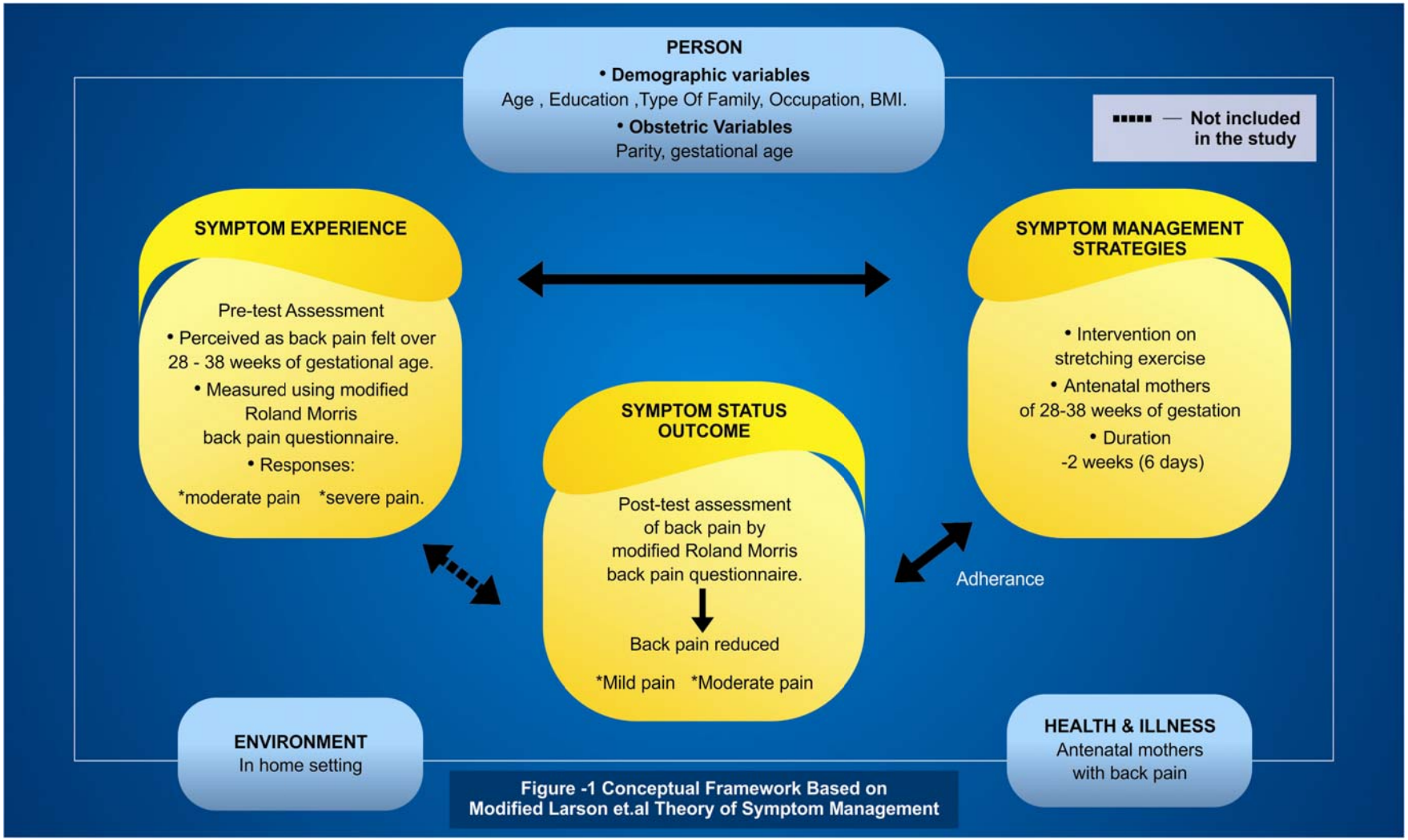

Figure -1 Conceptual Framework Based on Modified Larson et.al Theory of Symptom Management

CHAPTER-III

METHODOLOGY

Research methodology deals with the research approach, research design, setting of the study, population, criteria for selection of sample, sample size, sampling technique, instrument, data collection and data analysis.

Research Approach

Polit and Hunger, 2004 defined the approach as "A general set of orderly discipline procedure used to acquire information".

A quantitative approach was used for analyzing the effectiveness of stretching exercise in reducing back pain among antenatal mothers.

Research Design

Nancy Burns andSusan.k.Groove (2005)defined research design as a blue print for conducting the study that maximizes control over factors that could interfere with the validity of the findings. The research design guides the researcher in planning and implementing the study in a way that is most likely to achieve the indented goal.

Pre experimental one group pretestposttest design was chosen for this study to analyze the effectiveness of stretching exercise in reducing back pain among antenatal mothers.

A diagrammatic representation of research design is given below

Pretest 1st day	Intervention	Post test 13th day
O_1	X	O_2

Keys

O_1 – Pre-test level of back pain

X – Intervention on stretching exercise

O_2 – Post-test level of back pain

O_1- O_2– Effectivenessof stretching exercise

Variables

A variable is "An attribute of a person that varies, that is taken on different values".

Independent variable

The independent variable is the variable that is controlled and manipulated by the experimenter.

In the present study the independent variable is stretching exercise.

Dependant variable

The dependent variable is the variable that is measured by the experimenter.

In the present study the dependent variable is level of back pain among antenatal mothers.

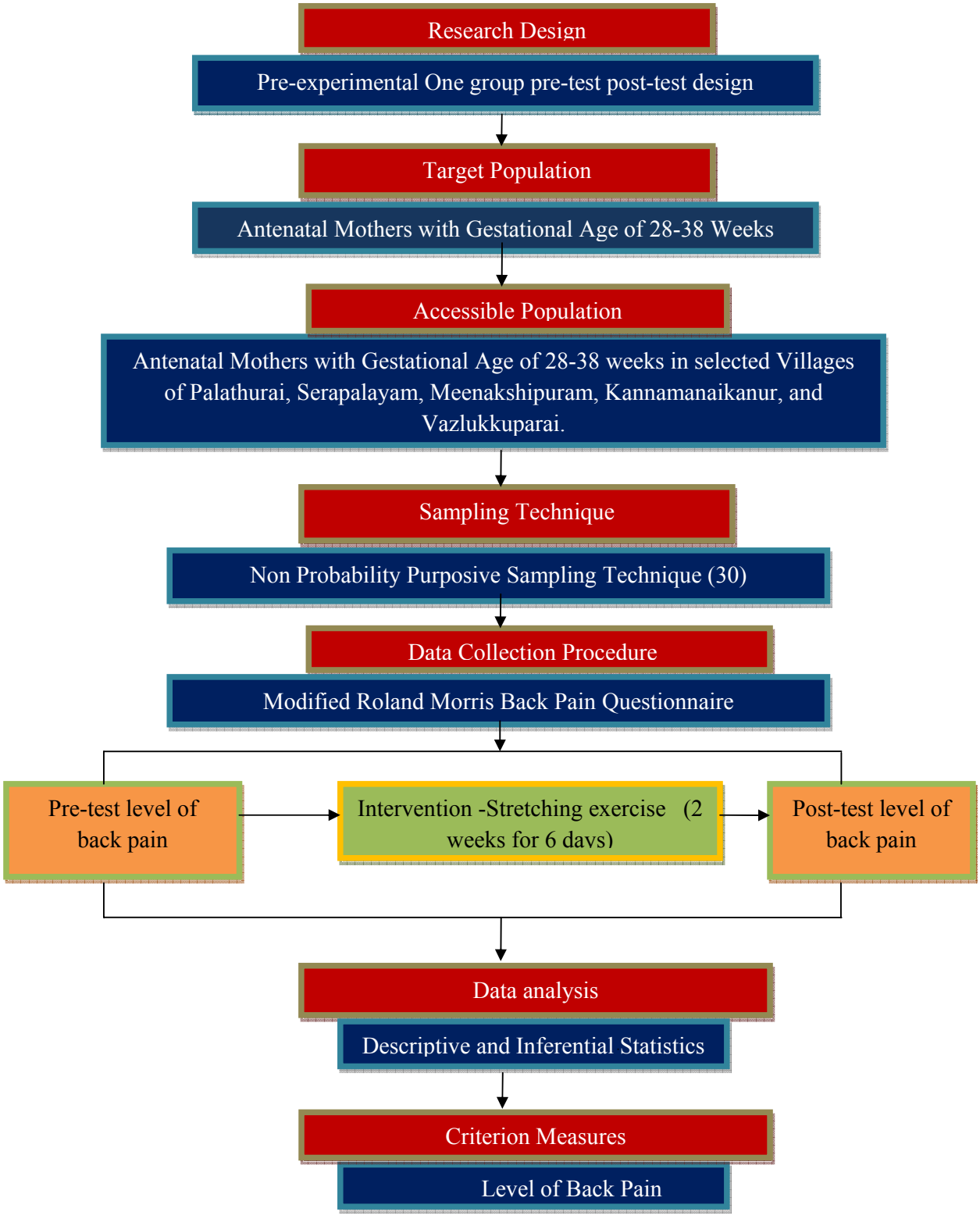

Figure 2:Schematic Representation of Research Methodology

Setting of the Study

The setting of the study was conducted in 5 villages namely Palathurai, Serapalayam, Meenakshipuram, Kannamanaikanurand Valukuparaicome under Arisipalayam rural area which is situated 10 km away from AnnaiMeenakshiCollege of Nursing in Coimbatore.

Population

According to Polit and Hungler (2005) “A population is the entire aggregation of causes in which a researcher is interested”.

The target population is the aggregation of cases about which the researcher would like to make generalization.

The target population of the study was all the antenatal mothers between the gestational age of 28-38 weeks.

Accessible population for the study was antenatal mothers between the gestational age of 28-38 weeks who reside in the villages of Palathurai, Serapalayam, Meenakshipuram, Kannamanaikanur and Valukuparai. Totally 59 antenatal mothers found under the criteria of gestational weeks of 28-38 weeks. They were 18 antenatal mothers in Palathurai, 7 antenatal mothers in Serapalayam, 12 antenatal mothers in Meenakshipuram, 8 antenatal mothersin Kannamanaikanur and 14 antenatal mothers in Valukuparai.

Sample

According to Polit and Hungler, (2005) sample consists of a subset of a population selected to participate in a research study.

The sample selected for present study was 30 antenatal mothers with back pain.

Sampling Technique

Sampling technique is the process of selecting a group of people, events, behaviorsor other elements that are representative of the population being studied.

The sample selected for the present study was by adopting non probability purposive sampling technique. The survey was done to identify antenatal mothers with the gestational age of 28-38 weeks at Palathurai, Serapalayam, Meenakshipuram, Kannamanaikanur, and Valukuparai villages under arisipalayam rural PHC by means of interview. 59 antenatal mothers were found under the criteria.

In present study 8 antenatal mothers from 18 were selected inpalathurai, 4 antenatal mothers from 7 in serapalayam, 7 antenatal mothers from 12 in meenakshipuram, 5 antenatal mothersfrom 8 in kannamanaikanur, and 6 antenatal mothers from 14 in valukuparai with back pain totally 30 mothers were selected based on inclusion criteria, exclusion criteria and those who scored > 5 from check list for sample selection.

Criteria for Sample Selection

Inclusion Criteria

- Antenatal mother with back pain in rural areas.
- Antenatal mothers with gestational age of 28 -38 weeks .
- Who were willing to participate.
- Mother who can understand Tamil

.

Exclusion Criteria

- High risk antenatal mothers.
- Mother who are not willing to participate.
- Mother with any medical problems.
- Mother with pathological back pain before pregnancy like scoliosis, lordosis, and kyphosis.
- Grand multi gravida mothers.(>5)
- Antenatal mothers with extreme level of back pain.

Development of the Tool

Treece [1990] emphasized that the instrument selected in research should as far as possible from the vehicle that would best obtain data for drawing conclusion.

Description of the Tool

The tool for data collection has been classified into 2 parts.

Part I

Demographic variables consisting of 5 variables which include age, education,occupation, type of family and BMI and in obstetric variables consist of 2 variables parity and gestational age.

Part II

Modified Roland Morris back pain questionnaire is used to assess the level of back pain among antenatal mothers.

The questionnaire consists of 20 items which was been formulated based on the daily activities of the antenatal mothers modification in the questionnaire were made as 5 likert scale and options were given as never (1), rarely (2), occasionally (3), frequently (4) and always (5) scoring was given from 0 to 100% indicating no pain, mild pain, moderate pain, severe pain and extreme pain. The scoring procedure was validated by the statistician and found applicable.

Scoring Procedure

The Modified Roland Morris back pain questionnaire consists of 20 items. The total score was 100 which was classified into 5 categories as follows

0 - 20% (0-20) -No pain

21 - 40% (21-40) - Mild pain

41 - 60% (41-60) - Moderate pain

61- 80% (61-80) - Severe pain

81 - 100% (81-100) - Extreme pain

Intervention on StretchingExercise

Stretching exercise is a form of tensing and relaxing the spine and associated muscles by the following steps. First warm up exercise such as slow walking, deep breathing exercises, ankle toe movements, extension movements of head in kneeling positionto be performed and stretching done by kneeling in all four with hands and knees - take deep breathe in and pull in abdomen by arching spine upward and hold the position for 5 counts then exhale by pulling stomach down to the floor by hallowing out back and hold the position for 5 counts. (Appendix-G)

Content Validity of the Tool

Polit and Beck (2004) states that 'Content validity is a judgment regarding how well the instrument represents to be assessed'.

To ensure the content validity the tool along with the statement of the problem, objectives, hypotheses, methodology and intervention protocol and criteria check list were given to 11 experts comprising 7 nursing experts from obstetrics and gynaecological department ,2 gynecologist, 1 physiotherapist and 1 statistician. The experts were requested to give their opinion and suggestions regarding the relevance of the tool for further modifications to improve the clarity and content of the items. The modifications were done in the tool based on expert's suggestion and consultation with guide. In demographic variable onset of back pain was added and in obstetric variable trimester variable was changed as gestational age. In Modified Roland Morris back pain questionnaire two questions was in the same meaning that was changed with alternative questions related to activities in daily living.

Reliability of the Tool

Brink (1985) stated that reliability refers to the consistency, stability and reliability of a data collection instrument.

The tool was administered to 5 samples by investigator and inter ratter with 20 minute interval insame situation. Reliability test was performed by parallel Cohen's kappa's method. Reveals that 14 questions have perfect agreement, 3 have substantial agreement and 3 have moderate agreement which indicatethe tool was reliable.

Pilot Study

Polit and Hungler (1999) denote that the "Pilot study is a small version or trial run, done in preparation for a main study".

Pilot study was conducted in rural areas of Pothanur PHC in Coimbatore to assess the feasibility of study and to decide the statistical analysis. The permission for conducting the study was obtained from directorate general of health services and medical officer of Pothanur PHC. 10 antenatal mothers with back pain were selected using sample selection criteria. Study period was 2 weeks and stretching intervention was provided in alternative days for 6 times

The result of the pilot study shows that the mean pre-test level of back pain was 77.6, standard deviation was 4.65 and mean post-test level of back pain was 58.1, standard deviation 3.78 and mean difference was 19.5, the obtained 't' value was 23.762 reflect significant at $p<0.05$ level.

The pilot study shows that setting, sample, and tool was feasible to conduct main study.

Data Collection Procedure

The data collection procedure was done for 6 weeks in Arisipalayam rural area at Coimbatore. The permission was obtained from the deputy director of health and medical officer of PHC.

The survey was done to identify antenatal mothers with the gestational age of 28- 38 weeks in selected 5 villages under Arisipalayam PHC by meansof interview. Antenatal mothers with back pain in selected villages with gestational age of 28-38 weeks were selectedby using non probability purposive sampling method with an inclusion criteria, exclusion criteria and check list. 30 samples were selected.

A pre test was conducted with demographic variable, obstetric variable and Modified Roland Morris Back pain questionnaire. Intervention was explained and from next day the stretching exercise was made to perform under supervision on alternative days for 2 weeks (6 days).The post test was conducted by using Modified Roland Morris Back pain questionnaire. Data collection schedule are as follows.

The survey was done in the selected villages in day 1 and day 2.

Village name	Sample no	pretest	Intervention	Post test
Palathurai	8	Day 3	Day 5,7,9,11,13,15	Day16
Serapalayam	4	Day 4	Day 6,8,10,12,14,16	Day 17
Valukuparai	6	Day18	Day 20,22,24,26,28	Day 29
Kannamanaikanur	5	Day 19	Day 21,23,25,27,29	Day 30
Meenakshipuram	7	Day 31	Day 32,34,36,38,40	Day 41

Plan for Data Analysis

The demographic variables were analyzed by descriptive statistics (frequency and percentage).The effectiveness of stretchingexercise in reducing back pain among antenatal mothers was analyzed by inferential statistics (dependent t test). The association between the back pain among antenatal mothers demographic variable and obstetric variable was assessed by chi- square test.

Protection of Human Rights

The study was conducted after the approval of research committee in the college. The nature and the purpose of the study was explained to the chief medical officer and study subjects, written consent was obtained from participants to gain the full co-operation and assurance was given to them that the anonymity of each individual would be maintained.

CHAPTER IV

DATA ANALYSIS AND INTERPRETATION

This chapter deals with the analysis and interpretation of the data collected from 30 antenatal mothers to assess the effectiveness of stretching exercise in reducing back pain among antenatal mothers. The purpose of analysis was to reduce the data to a manageable and interpretable form so that the research problem can be studied and tested.

Kerlinger, has defined analysis as "The categorizing, reducing, manipulating and summarizing of data to obtain answers to research hypothesis questions". The analysis and interpretation of data of this study are based on data collected through structured interview questionnaire on antenatal mothers with back pain.

The study findings are presented in sections as follows:

Section I : Data on demographic and obstetricvariables of antenatalmothers with back pain.

Section II : Data on level of back pain among antenatal mothers with back pain.

Section III : Data on effectiveness of stretching exercise among antenatal mothers with back pain.

Section IV : Data on association between level of back pain among antenatal mothers with their selected demographic and obstetricvariables.

SECTIONI: DATA ON DEMOGRAPHIC AND OBSTETRIC VARIABLES OF ANTENATAL MOTHERS WITH BACK PAIN

Table: 1

Frequencies and Percentage Distribution of Antenatal Mothers according to Demographic and ObstetricVariables.

N = 30

S.No.	Demographic Variables	Frequency (n)	Percentage (%)
1	Age in Years		
	a. 18 – 23	10	33
	b. 24 – 29	15	50
	c. 30 – 35	5	17
2	Education		
	a. Primary	2	7
	b. Middle	9	30
	c. Higher Secondary	16	53
	d. Degree or More	3	10
3	Occupation		
	a. Sedentary Worker	14	47
	b. Moderate Worker	16	53
4	Type of Family		
	a. Nuclear Family	18	60
	b. Joint Family	12	40
5	BMI		
	a. <19 - Under Weight	0	0
	b. 20-26- Normal	14	47
	c. >27 - Obese.	16	53

(Contd.,)

S.No.	Obstetric Variables	Frequency (n)	Percentage (%)
6.	Parity		
	a) Primipara	18	60
	b) Multi para	12	40
7.	Gestational age		
	a) 28-32 weeks	13	43
	b) 33-38 weeks	17	57

Table 1 reveals that, with regards to age in years, the antenatal mothers with back pain were 10 (33%) in 18-23 years, 15% (50%) in 24-29 years and 5 (17%) in 29-35 years.

Regarding educational status themajority of antenatal mothers 16 (53%) were had higher secondaryeducation, 2 (7%) had primary education, 9 (30%) had middle educationand 3 (10 %) had degree education.

Regarding occupation, themajority of the antenatal mothers 16 (53 %) of them were moderate worker and14 (47%) were sedentary worker.

Regarding family, the antenatal mothers with back pain 18 (60%)resides in nuclear family and 12 (40%) in joint family.

Regarding BMI, the majority of antenatal mothers 16(53 %) belong to (greater than 27) obese BMIand 14 (47%) in (0-26) normal BMI.

Regarding parity the majority of antenatal mothers 18 (60 %) belong to primiparaand12 (40 %) belong to multi para.

Regarding gestational age13 (43 %) antenatal mothersbelong to 28-32gestational weeks and 17 (57 %) belong to 33-38 gestational weeks.

SECTION II: DATA ON LEVEL OF BACK PAIN AMONG ANTENATAL MOTHERS WITH BACK PAIN.

Table: 2

Frequency and Percentage Distribution of Pre testLevel of Back Pain among Antenatal Mothers.

N = 30

S. No	Level of Back Pain	Respondents	
		n	%
1.	Mild	0	0
2.	Moderate	14	47
3.	Severe	16	53
4.	Extreme	0	0

Table 2 shows that in pretest, 14 (47%) of antenatal mothers having moderate level of back pain, and 16 (53%) had severe level of back pain.

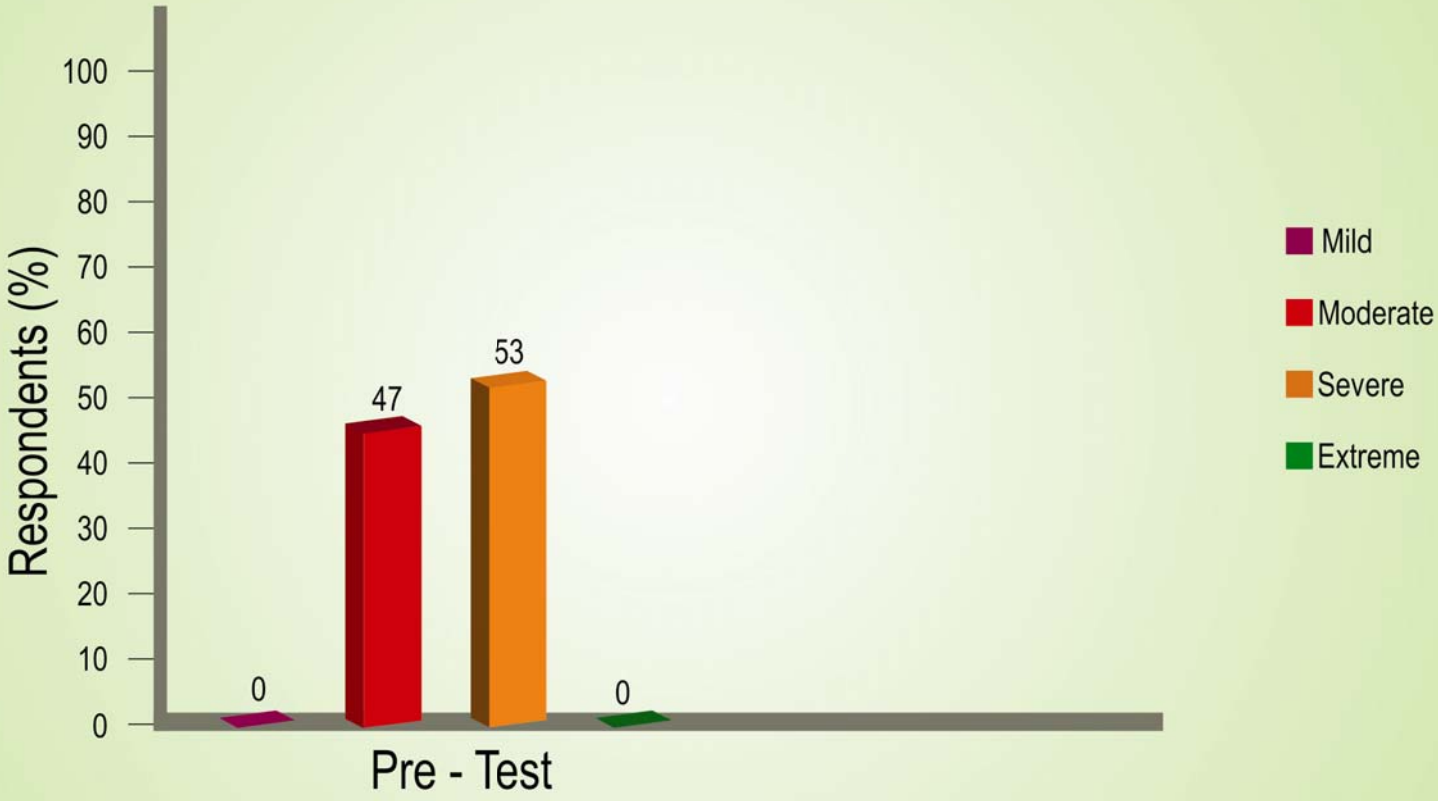

Figure 3 - Diagrammatic Representation of Pre Test Level of Back Pain Among Antenatal Mothers

SECTION III: DATA ON EFFECTIVENESS OF STRETCHING EXERCISE AMONG ANTENATAL MOTHERS WITH BACK PAIN.

Table: 3.1

Frequency and Percentage Distribution of pre test and post testLevel of Back Pain among Antenatal mothers.

N = 30

S. No.	Level of Back Pain	Respondents			
		Pre-test		Post-test	
		n	%	n	%
1.	Mild (20-40%)	0	0	9	30
2.	Moderate (41-60%)	14	47	21	70
3.	Severe (61-80%)	16	53	0	0
4.	Extreme (81-100%)	0	0	0	0

Table 3.1 shows that in pretest14 (47%) of antenatal mothers have moderate level of back pain, and 16 (53%) had severe level of back pain. On contrast inpost test, 9 (30 %) had mild level of back pain and 21 (70%) had moderate level of back pain.

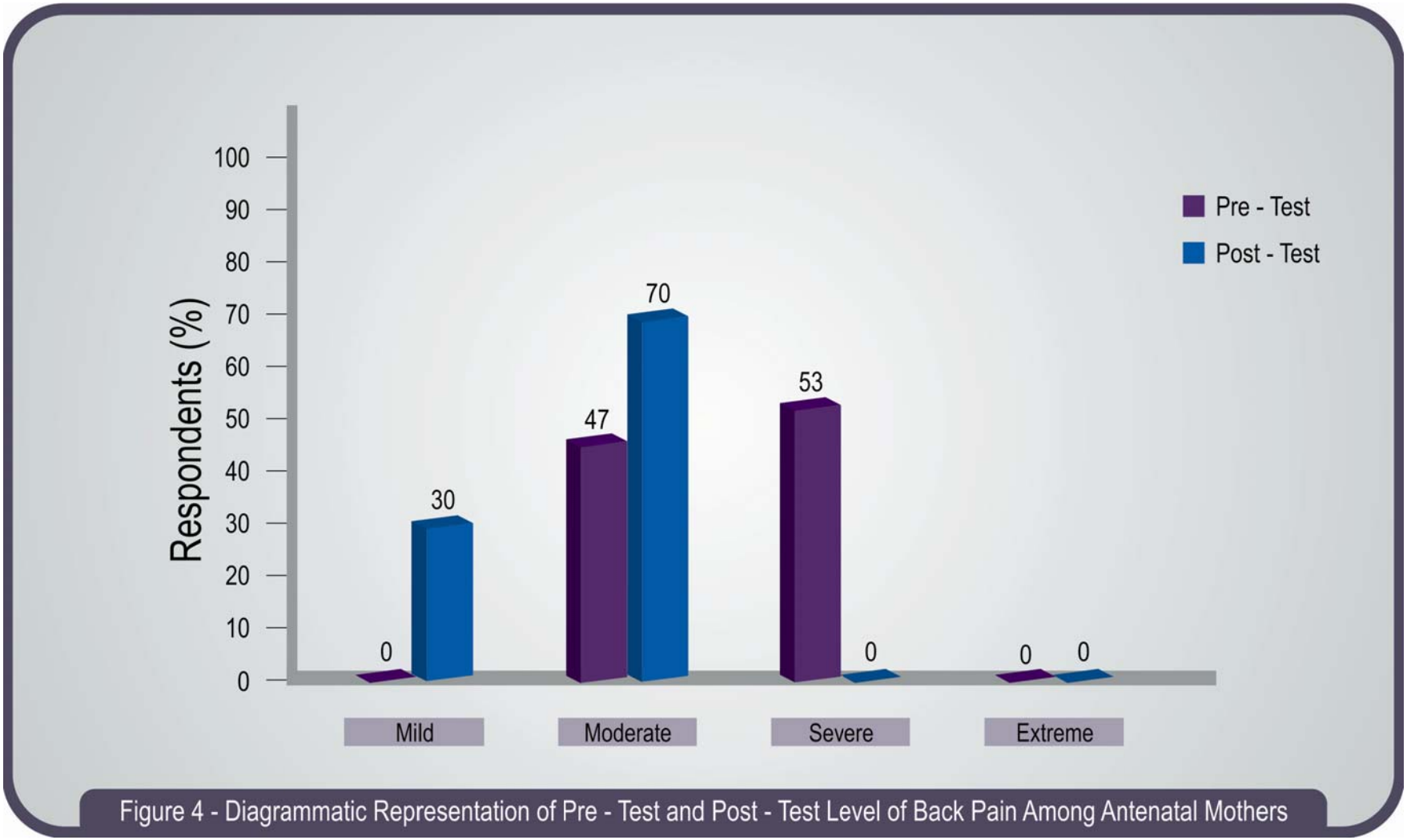

Figure 4 - Diagrammatic Representation of Pre - Test and Post - Test Level of Back Pain Among Antenatal Mothers

Table: 3.2

Mean, Standard Deviation, Mean Difference and 't' Value of Pre-Test and Post-Test Level of Back Pain among Antenatal Mothers.

N=30

S.No.	Aspects	Mean	SD	MD	't' Value
1	Pre-test	63.73	9.50	17.86	5.05*
2	Post-test	45.87	8.32		

* - Significant at $p < 0.05$ level

Table: 3.2reveals that the mean pre-test level of back pain was 63.73 and standard deviation was 9.50andthe mean post-testlevel of back painwas 45.87 and standard deviation was8.32. The mean difference was 17.86. The obtained't' value is 5.05.It was significant at $p < 0.05$ level. Hence the stated hypotheses H1is accepted.

H1: There will be significant difference between mean pre test and post testlevel of back pain among antenatal mothers.

It is inferred that stretching exercise was highly effective in reducing back pain among antenatal mothers with back pain.

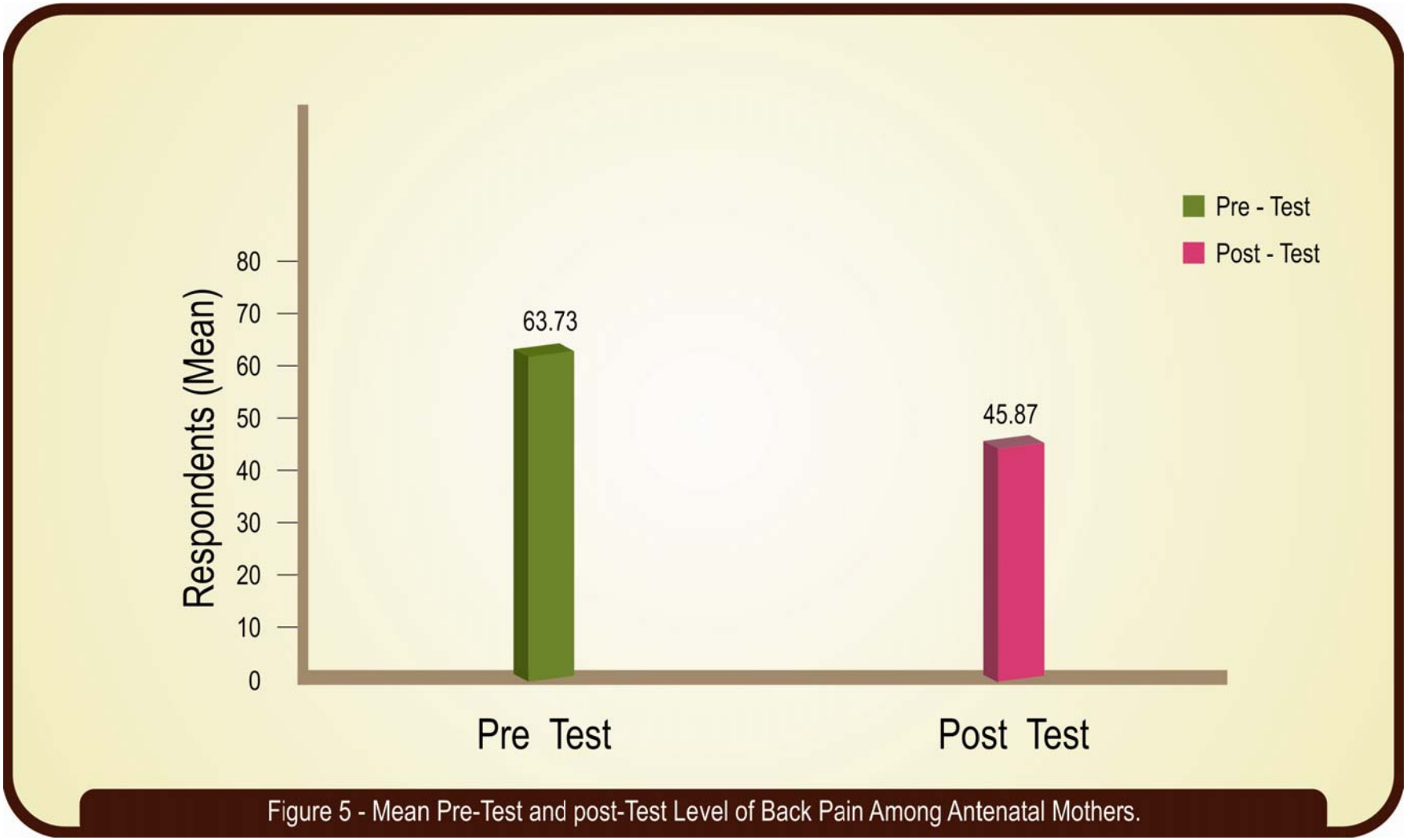

Figure 5 - Mean Pre-Test and post-Test Level of Back Pain Among Antenatal Mothers.

SECTION IV: DATA ON ASSOCIATION BETWEEN PRETEST LEVEL OF BACKPAIN AMONG ANTENATAL MOTHERSWITH THEIR SELECTED DEMOGRAPHIC AND OBSTETRICVARIABLES.

Table: 4.1

Frequency, Percentage and χ^2 Distribution regarding Pre testlevel of Back Pain among Antenatal Mothers with their selected Demographicand Obstetric variables.

N=30

S.No.	Demographic Variables	Moderate		Severe		χ^2
		N	%	n	%	Value
1	Age in Years					
	a. 18 – 23	7	23	3	10	4.93
	b. 24 – 29	4	13	11	37	df=2
	c. 30 – 35	3	10	2	7	
2	Education					
	a. Primary	1	3	1`	3	
	b.Middle	3	10	6	20	1.84
	c. Higher Secondary	8	27	8	27	df=3
	d. Degree or More	2	7	1	3	
3	Occupation					
	a.Sedentary Worker	6	20	8	27	0.15
	b. Moderate Worker	8	27	8	27	df=1
4	Type of Family					
	a. Nuclear Family	8	27	10	33	0.09
	b. Joint Family	6	20	6	20	df=1
5	BMI					
	a. <19 - Under Weight	0	0	0	0	6.47*
	b. 20-26- Normal	10	33	4	13	df=1
	c. >27 - Obese.	4	13	12	41	

(Contd.,)

S.No.	ObstetricVariables	Moderate		Severe		χ^2 Value
		N	%	n	%	
6.	Parity					
	a) PrimiPara	6	20	12	40	3.21
	b) Multi Para	8	27	4	13	df=1
7.	Gestational age					
	a) 28-32 weeks	9	30	4	13	4.69*
	b) 33-38 weeks	5	17	12	40	df=1

* - Significant at $p < 0.05$ level df = degree of freedom.

Table: 4.1 indicate the sustentative summary of chi-square analysis, which was used to bring out the relationship between the back pains with their selected demographic variables.

With regard to age, among age 18-23 age group, 7 (23%) experienced moderate level of back pain and3(10%) experienced severe level of back pain.Among 24-29 agegroup,4(13%) experienced moderate level of back pain and 11(37%)experienced severe level of back pain. Among 30-35 age group,3 (10%) mothers experienced moderate level of back pain and 2(7%) experienced severe level of back pain. The obtained chi-square value is 4.93which is statistically not significant at $p < 0.05$ level. Hence it was inferred that hypothesesH2 is rejected.

H2: There will be significant association between the level of back pain among antenatal mothers with their selected demographic and obstetric variables.

Regarding education status among antenatal mothers withprimary education 1 (3%) of them had moderate level of back pain and 1 (3%) had severe level of back pain. Among antenatal mothers with middle education 3 (10%) of them had moderate level of back pain and 6(20%) had severe level of back pain. In antenatal mothers with higher secondary education,8 (27%) of them had moderate level of back pain and 8 (27%) of them had severe level of back pain. In antenatal mothers with degree education 2 (7%) antenatal mothers had moderate level of back pain and 1(3%) had severe level of back pain.The obtained chi square value is 1.84 which is statistically not significant at $p<0.05$ level. Hence it was inferred that hypotheses H2 is rejected.

With regard to occupation, antenatal mothers performing sedentary work 6 (20%)of them with moderate level of back pain and 8 (27%)of them with severe level of back pain.Among antenatal mothers performing moderate work 8(27%) of them had moderate level of back pain and 8(27%) of them had severe level of back pain. The obtained chi square value is 0.15 which is statistically not significant at $p< 0.05$ level. Hence it was inferred that hypotheses H2 is rejected.

With regard to type of family, antenatal mothers residing in nuclear family,8(27%) had moderate level of back pain and 10(33%) in severe level of back pain. Among antenatal mothers residing in joint family,6(20%) mothers had moderate level of back pain and 6(20%) had severe level of back pain.The obtained chi square value is 0.09which is statistically significant at $p < 0.05$ level. Hence it was inferred that hypothesesH2is rejected.

With regard to BMI, antenatal mothers with normal value of 20-26 10(33%) of them had moderate level of back pain and 4(13%) of them had severe level of back pain. Among greater than 27 – obese mothers4(13%) had moderate level of back pain and 12(41%) had severe level of back pain.The obtained value is 6.47 which is statistically significant at $p < 0.05$ level. Hence it was inferred that hypotheses H2 is accepted.

With regard to parity among primipara mothers 6(20%) of them had moderate level of back pain and 12 (40%) of them had severe level of back pain. Among multi para mothers, 8 (27%) of them had moderate level of back pain and 4 (13%) of them had severe level of back pain. The obtained chi square value is 3.21 which is statistically not significant at $p < 0.05$ level. Hence it was inferred that hypotheses H2 is rejected.

In regard to antenatal mothers with 28-38 weeks of gestational age, 9 (30%) of them had moderate level of back pain and 4 (13%) of them had severe level of back pain. Among antenatal mothers in 33-38 weeks of gestation, 5 (17%) of them had moderate level of back pain and 12 (40%) of them had severe level of back pain.The obtained chi square value is 4.69 which is statistically not significant at $p < 0.05$ level. Hence it was inferred that hypotheses H2 is accepted.

Table .4.2

Frequency, Percentage and χ^2 Distribution regarding Post test Level of Back Pain among Antenatal Mothers with their Selected Demographic and Obstetric Variables.

N=30

S.No.	Demographic Variables	Mild		Moderate		χ^2 Value
		N	%	n	%	
1	Age in Years					
	a. 18 – 23	6	20	4	13	12.86* df=2
	b. 24 – 29	0	0	15	50	
	c. 30 – 35	3	10	2	7	
2	Education					
	a. Primary	1	3	1	3	
	b. Middle	2	7	7	23	2.75
	c. Higher Secondary	4	13	12	40	df=3
	d. Degree or More	2	7	1	3	
3	Occupation					
	a. Sedentary Worker	3	10	11	37	0.92
	b. Moderate Worker	6	20	10	33	df=1
4	Type of Family					
	a. Nuclear Family	4	13	14	47	1.30
	b. Joint Family	5	17	7	23	df=1
5	BMI					
	a. <19 - Under Weight	0	0	0	0	3.09 df=1
	b. 20-26- Normal	2	7	12	40	
	c. >27 - Obese.	7	23	9	30	

(Contd.,)

S.No.	Obstetric variables	Mild		Moderate		χ^2Value
		N	%	n	%	
6.	Parity					
	a) Primipara	5	17	13	43	0.01
	b) Multi para	4	13	8	27	df=1
7.	Gestational age					
	a) 28-32 weeks	6	20	7	23	2.85
	b) 33-38 weeks	3	10	14	47	df=1

* - Significant at $p < 0.05$ level df = degree of freedom

Table: 4.2. With regard to age in years among 18-23 years age group, 6(20 %) were with mild level of back pain and 4(13%) with moderate level of back pain.Among antenatal mothers in 24-29 years15 (50%) hadmoderate level of back pain. Among antenatal mothers in 30-35 years 3 (10%)had mild level of back pain and 2 (7%) had moderate level of back pain.The obtained chi square value is 12.86 which is statistically significant at $p < 0.05$ level. Hence it was inferred that hypotheses H2 is accepted.

H2: There will be significant association between the level of back pain among antenatal mothers with their selected demographic and obstetric variables.

Regarding educational status amongantenatal mothers completed primary education 1 (3%)of them had mild level of back pain and 1 (3%) had moderate level of back pain.Among antenatal mothers completed middle education, 2 (7%)

hadmildlevel of back pain and 7 (23%) had moderate level of back pain. Among antenatal mothers completed higher secondary education 4(13 %)of them had mild level of back pain and 12 (40 %) had moderate level of back pain.In antenatal mothers completed degree or more, 2 (7%) had mild level of back pain and 1(3%) had moderate level of back pain.The obtained value is 2.75 which is statistically not significant at $p < 0.05$ level. Hence it was inferred that hypotheses H2 is rejected.

With regard to occupation,among antenatal mothers performing sedentary work,3 (10%)had mild level of back pain and 11(37%) had moderate level of back pain.Among antenatal mothers performing moderate work,6 (20 %) had mild level of back pain and 10 (33%) had moderate level of back pain.The obtained chi square value is 0.92 which is statistically not significant at $p < 0.05$ level. Hence it was inferred that hypotheses H2 is rejected.

With regard to family among antenatal mothers residing in nuclear family, 4 (13%) had mild level of back pain and 14 (47%) had moderate level of back pain. Among antenatal mothers residing in joint family, 5 (17 %) had mild level of back pain 7(23%) had moderate level of back pain.The obtained chi square value is 1.30 which is statistically not significant at $p < 0.05$ level. Hence it was inferred that hypotheses H2 is rejected.

With regard to BMI, antenatal mothers with normal BMI 2 (7%) had mild level of back pain and 12(40%) in moderate level of back pain. Among antenatal mothers greater than 27 obese 7 (23%) in mild level of back pain and 9(30%) had moderate level of back pain.The obtained chi square value is 3.09 which is

statistically not significant at $p < 0.05$ level. Hence it was inferred that hypotheses H2 is rejected.

Regaring to parity, among primipara mothers 5 (17%) of them had mild level of back pain and 13 (43%) of them had moderate level of back pain. Among multi para mothers, 4 (13%) had mild level of back pain and 8 (27%) had moderate level of back pain.The obtained chi square value is 0.01 which is statistically not significant at $p < 0.05$ level. Hence it was inferred that hypotheses H2 is rejected.

In regard to 28-38 weeks of gestational age, 6 (20 %) of them had mild level of back pain and 7 (23%) had moderate level of back pain. Among antenatal mothers in 33-38 weeks of gestation, 3 (10%) of them had mild level of back pain and 14 (47 %) had moderate level of back pain. The obtained chi square value is 2.85 which is statistically not significant at $p < 0.05$ level. Hence it was inferred that hypotheses H2 is rejected.

CHAPTER -V

DISCUSSION

This study shows the effectiveness of stretching exercise on level of back pain among antenatal mothers.The study was conducted by pre experimental studyone group pretest post test design.The study was conducted in 5 villages of Palathurai, Serapalayam, Meenakshipuram, Kannamanaikanur and Vazlukkuparai under Arisipalayam PHC. Non-Probability purposive sampling technique was used. Total sample size was 30.

Modified Roland Morris back pain questionnaire was used to assess the level of back pain among antenatal mothers.The questionnaire consists of 20 questions with 5 scoring alternatives.

The findings of the study was analyzed by using descriptive statistics [mean, standard deviation, frequency and percentage] and inferential statistics [dependant‘t’ testand chi- square]. The data findings was organized and arranged based on the objective of the study.

The first objective of the study was to assess the level of back pain among antenatal mothers.

The study findings reveals that among antenatal mothers 14(47%) were under moderate level of back pain and the remaining 16 (53 %)were under severe level of back pain.(Table2)

The findings was supported by Darry B et.al 2006 who evaluated that the incidence of women experiencing low back pain during pregnancy ranges from 24 % to 90 % done by retrospective and prospective studies.

The finding was supported by Michael Devitt et.al 2005 conducted a survey over three year period to estimate the impact on intensity and duration of lower back pain.The study findings reveal that 45 % to 75 % of all women experience back pain during pregnancy during the time between sixth and ninth month of pregnancy.

The second objective of the study is the effectiveness of stretching exercise in reducing back pain among antenatal mothers.

The study findings reveals that among 30 antenatal mothers with back pain after providing stretching exercise the majority 70 % antenatal mothers was under moderate level of back pain and 30% was under mildlevel of back pain.(Table 3.1)

The result of effectiveness of stretching exercise among antenatal mothers with back pain reveals that the mean pretestlevels of back pain is 63.73 and meanpost test level of back pain is 45.87 and mean difference is 17.86. The obtained ‘t’ value is 5.05 statistically significant at $p<0.05$ level. Result shows that stretching exercise is highly effective in reducing back pain among antenatal mothers. Table 3.2)

Hence the hypotheses H1 are accepted. It infers that there is a significant difference between the mean pre test and post test level of back pain among antenatal mothers.

The findings was supported by the research study of Martins R et.al (2005) conducted a experimental study to assess the effect of stretching exercise in preventing and treating back and pelvic pain during pregnancy.61% of the women participated in the stretching exercise group reported that pain was totally gone.

Requejo SM et.al (2002) conducted a study to assess the effectiveness of stretching exercise among pregnant womens. Intervention provided to the samples 4 times in 2 weeks for 20 minutes. The study reveals stretching exercise an effective manual technique in the treatment of pregnant women with back pain.

The third objective was to determine the association between the level of back pain among antenatal mothers with their selected demographic variables and obstetric variables.

The study findings concluded that in pre testthe obtained chi-square value for BMIthe calculated value is 6.47 and chi square value for gestational age is 4.69 were significant at $p < 0.05$ levels. Hence it was interfered that there was statistically significant association between BMI, gestational ageand level of back pain among antenatal mothers.(Table 4.1)

The post test finding reveals that obtained chi square value for age the calculated value is 12.86 has significant association between level of back pain among antenatal mothers.(Table 4.2)

Hence it reveals hypotheses H2 was accepted. It infers that there is an association between the level of back pain among antenatal mothers with their selected demographic and obstetric variables.

The obtained chi-square value for other variables in pre testsuch as education, occupation, family, BMI, and parity has no statistically significant association between with levels of back pain among antenatal women's and other the variables in post testsuch as education, occupation, family, BMI, parity and gestational age has no significant association with level of back pain among antenatal women's.

The findings was supported by the study of Bijithra N.C. 2011 who conducted an experimental study to evaluate the effectiveness of stretching exercise in reducing back pain among antenatal mothers in rural area under Gottigerre PHC. Sample in the experimental group performed stretching exercise for about 7 days. The variable used was age, educational status, occupation, income, parity, height, weight, gestational age, and previous experience of back pain. This study reveals that these variables has no association with pregnancy related back pain and also the study findings conclude that stretching exercise was effective in reducing back pain among antenatal mothers.

Thus present study reveals the effectiveness of stretching exercise in reducing back pain among antenatal mothers.

CHAPTER -VI

SUMMARY CONCLUSION AND RECOMMENDATION

This chapter deals with summary, conclusion, limitation and recommendations of the study. Further it includes implications for the nursing practice, nursing education and nursing administration

Summary of the Study

The primary aim of the study was to evaluate the effectiveness of stretching exercise in reducing back pain among antenatal mothers in rural areas under Arisipalayam PHC.

The Objectives of the Study are

- To assess the level of back pain among antenatal mothers.
- To evaluate the effectiveness of stretching exercise in reducing back pain among antenatal mothers.
- To determine the association between the level of back pain among antenatal mothers with their selected demographic variables and obstetric variables.

A pre experimental one group pretest post test design was chosen for this study without randomization. The samples were selected for this study by adopting non probability purposive sampling technique. Sample selected by using inclusion criteria, exclusion criteria, and check list.The sample selected for the present study was decided to be 30.

The tool was used to collect the data which consist of Part I consist of demographic and obstetric variables consistedage, education, occupation, type of family, BMI, parity and gestational weeks. Part II Modified Roland Morris back pain questionnaire consist of 20 questions was used to assess the level of back pain among antenatal mothers.

The content validity was done with 11 experts 2 gynecologists, 7 nursing experts, 1 statistician, and 1 physiotherapist. Reliability was calculated by parallel cohen's kappa's method. Data was collected for 6 weeks. Survey was done to find antenatal mothers with 28-38 weeks of gestation. Samples were selected using inclusion criteria, exclusion criteria and check list.Pretest was done using demographic variables, obstetric variables and modified Roland Morris Back pain questionnaire. Stretching exercise were taught and made mothers to perform on alternative days for three times a week for 2 weeks. After interventionpost test was done. The collected data were analyzed by using both descriptive statistics (Mean, Standard deviation, Frequency and Percentage) and inferential statistics (dependant't' test and Chi-square) and results were calculated.

Major Study Findings are

With regard to the level of back pain among antenatal mothers most of them are under moderate and severe level of back pain. On post test revealed the samples shows reduction in level of back pain from severe to moderate and moderate to mild level of back pain.

With regard to effectiveness of stretching exercise among antenatal mothers with back pain the mean post test level of back pain was less than the mean pretest score. The obtained 't' value was 5.05 significant at $p < 0.05$ level.

With regard to the association between the levels of back pain in selected demographic variables and obstetric variables. The study findings have revealed that in pre testthere was significant association between BMI, gestational age and level of back pain. In post test age has significant association with level of back pain.

Conclusion

The main conclusions drawn from this present study was stretching exercise is effective in reducing back pain among antenatal mothers that denoted by significant level of back pain.After the intervention there had been a significant reduction in back Pain.Samples become familiar and found themselves comfortable and also expressed satisfaction.

This study helps antenatal mothers to treat back pain a minor ailments during pregnancy through stretching exercise and promotes relief from suffering.

Implications of the Study

Nursing implication usually includes specific suggestions for nursing practice, nursing education, nursing administration and nursing research. Nursing implication for this study is discussed under.

Nursing Practice

- Regular health education program conducted in the community areas by nursing personnel helps the pregnant women in reducing the occurrence of back pain.
- Nurses are in the best position to impart exercises to the antenatal mothers in hospital and community.
- Nurses can play an important role in primary health care by early detection and prevention of low back pain. Exercises can be used as a means of health promotion on the pregnant women's.
- Develop sensitivity to the effect of stretch exercise intervention on reducing low back pain among antenatal mothers.
- Nurses can organize an in-service education programme on stretching exercise to update the knowledge.

Nursing Education

- Nurses could learn the assessment of back pain and teach stretching exercise in reducing back pain among antenatal mothers as an independent nursing intervention.
- Nursing students should be taught about the importance of stretching exercises, thereby they can help antenatal mothers to overcome back pain.

- Adequate training can be given to the nursing staffs and students where stretching exercise intervention was used in reducing low back pain.
- Can make available literature related to back stretch exercise in reducing back pain among antenatal mothers in the library for students.

Nursing Administration

- The nurse administrator should arrange outreach activities and continuing nursing education programme collaboration with different agencies aiming at creating awareness to the midwives which plays a major role in providing health education and care to the antenatal, intranatal and postnatal mothers.
- Nursing administrator can organize special training programme in stretching exercise in both teaching and clinical setup for antenatal mothers.

Nursing Research

- The findings of the study serve as a basis for professional and the nursing students to conduct further studies on reducing back pain during pregnancy.
- The study will motivate the initial researchers to conduct the same study on large scale and study will be the reference for the extensive and intensive nursing research in the area of ante partum care.
- Disseminate the findings through the conferences, seminars, publication, in national, international journal and world wide web.

Limitation

- Study subjects were limited to antenatal mothers in rural areas only hence generalization is limited.

Recommendations

- The study can be conducted in different setting such as hospital and primary health care centers.
- The same study can be replicated using large sample size.
- The comparative study can be conducted to assess the effectiveness of stretching exercise and other alternative complementary therapies in reducing back pain.
- The same study can be conducted among nurses to assess the knowledge and attitude regarding stretching exercise in reduction of back pain among antenatal mothers.

REFERENCES

BOOK REFERENCE

- Adele. (2005). Maternal and Child Health Nursing Care of the Child Bearing Family. (6th ed.) Philadelphia: Lippincott Williams and wilkins.
- Beck. (2004). Nursing Research Principles and Methods. (7th ed.) Philadelphia: Lippincott Williams and wilkins company.
- Brink. (1985). Advanced Design in Nursing Research. (2nd ed.). USA: SAGE Publication.
- Dutta,D.C. (2004).Textbook of Obstetrics including Perinatology and Contraception. (7th ed.) London : New central book agency.
- Gupta. (1990). Fundamentals of Mathematical Statistics. (1st ed.) Newdelhi: Sultan chand publications.
- Hungler. (2001). Nursing Research Principles and Methods. (5th ed.) Philadelphia: JB Publication.
- Mahajan, BK. (1991). Methods in Biostatistics. (5th ed.) Newdelhi: Brothers medical publishers.
- Nancy Burns. (2005). The Practice of Nursing Research. (5th ed.) Missouri, Elseiver: Sounders publication.
- Polit,F. & Denise Hungler. (2004). Nursing Research Principles and Methods.
- (8th ed.) Philadelphia: J.B.Publication.
- Polit& Beck. (2004). Nursing Research Principles and Methods. (7th ed.) Philadelphia: J.B Lippincott Publication.
- Shirish. (2005). Manual of Obstetrics. (2nd ed.) Newdelhi: Elsiver Publication.

JOURNAL REFERENCE

- AnnelieGutke. (2008). Predicting Persistent Pregnancy – Related Low Back Pain. Journal of Lippincott and Williams. 33(1):124-126.
- Ayyani. (2009). Prevalence And Pattern Of Back Pain Among Pregnant Women Attending Antenatal Clinic in Selected Health Care Facilities. African Journal of biomedical research. 2(54):332-336.
- Dumas, G.A. (2007). Exercise Posture and Back Pain during Pregnancy. British Medical Journal. 10(4):125-127.
- Dodd &Janson. (2008). Advancing the Science Of Symptom Management. Journal of Advanced Nursing. 33(9):174-179.
- Garshashi, A. (2004). The Effect of Exercise on the Intensity of Low Back Pain in Pregnancy. International Journal of Gynecological and Obstetrical Nursing. 88(5):226-229.
- Impact on Quality of Life and Physical Ability of Pregnancy-Related Back Pain in the Third Trimester of Pregnancy, Journal of Obstetrics and Gynecology. 36(18) :112-119.
- Kristiansson. (2006). Back Pain during Pregnancy. Journal of Pakistan Medical Association. 21(6):334-335.
- Lauri Linder. (2010). Analysis of UCSF Symptom Management Theory. Journal of Pediatric Oncology Nursing. 27(6). Patricia. (2005). Looking at Symptoms with A Middle Range Theory Lens. Research and Scholarship Journal. 3(5):145-152.
- Tollison. (2007). Physical Exercise in the Treatment of Low Back Pain. International Journal of Gynecological and Obstetrical Nursing. 17(12) : 226-229.

- Yeo. (2006). A Randomized Comparitive Trial of Efficacy And Safety Of Exercise During Pregnancy. International Gynecology and Obstetrical Nursing. 27(40): 338-346.
- Ylien,J. (2008). Stretching Exercise versus Manual Therapy in Treatment of Chronic Neck Pain. International Journey of Gynecological and Obstetrical Nursing. 39(6) :445-449.

NET REFERENCES

- Alisia M. (2004 October 31). Preventing and Managing Back Pain in Pregnancy. Retrieved on (November 23, 2010) from http://books.google.co.in/ books?id= 5Icbu 8c0qokC&pg//.
- Ansari. (2010 July 12). Low Back Pain Pregnancy in Iranian Women: Prevalence and Risk Factors. Retrieved on (October 16, 2010) from http: // www.ncbi.gov / pubmed /20067352/. .
- Al- herz. (2008 February 27). Exercise Therapy for Clients with Diffuse Idiopathic Skeletal Hyperostosis. Retrieved on (December 17, 2010) from http://www.ncbi.gov / pubmed /17885726/ .
- Albaladejo. (March 25, 2010). The Efficacy of a Short Education Program and a Short Physiotherapy Program for Treating Low Back Pain in Primary Care. Retrieved on (2010 October 19) from http:// www.ncbi.gov/ pubmed 20147875.
- Bijithra. (2011 June 19). Effectiveness of Back Stretch Exercise in Reducing Back Pain among Antenatal Mothers in GothigerreePhc. Retrieved on (January 22, 2011) from http://www.ruhs.ac.in// .
- Bhathia. (2010 April 6). Pregnancy Back Pain. Retrieved on (November 17, 2010) from http://www. drhus bands .com/ blong/chriopathic/ pregnancy back pain .
- Collision J. (2008 June 26). Managing Back Pain during Pregnancy – Bmc and Alternative Medicine. Retrieved on (June 17 2011) from http://www.biomed central.com/1472-688218/34

- Clayton. (2007 February 9). Back Pain in an Underserved United States Pregnant Population. Retrieved on (March 25, 2011) from http://united states – back pain -6342 /population .
- Cleland. (2006 November 11). Slump Stretching in the Management of Non Radicular Low Back Pain. Retrieved on (November 17, 2010) from http:// www.ncbi.gov /pubmed/16380286.
- Cruz Jimenez. (2006 March 3). The Effect of Exercise in Low Back Pain. Retrieved on (December 13, 2010) from http:// www.ncbi.gov /pubmed /19610547.
- Darry., E. (2008 October 30). Pregnancy related Back Pain. Retrieved on (October 24, 2010) from http:// www.orthospine.com/ view.aspxrid=2435 30.10.2007
- Deborath. (2009 October 12). Back Care When Pregnant Maintaining a Healthy Spine. Retrieved on (December `16, 2010) from http://www.spine universe .com/back pain when pregnant maintaining healthy spine .
- Damenleon. (2007 July 2007). Pregnancy Back Pain. Retrieved on (March 28, 2011) from http://www.articlebase.com/medicine-article/pregnancy-backpain-188303 .html /#i*22 HFRKPEKJ.
- Dong Adair. (2002 august 26). Low Back Pain Disability during Pregnancy evaluated by Oswestry. Retrieved on (April 4, 2011) from http:// www. fitnesslowbackpain / disability -pregnancy// .
- Ewert. (2009 September 1). The Comparative Effectiveness of Multimodal Verses Exercise done for the Secondary Presence of Chronic Low Back Pain and Disability. Retrieved on (September 6, 2010) from http:// www .ncbi.gov /pubmed /1976992/.

- Gustafsson. (2008 August 26). Influence of Specific Muscle Training on Pain Activity Limitation and Kinessiophobia in Women. Retrieved on (November 25, 2010) From http:// www.ncbi.gov/pubmed / 17854029/ .
- Gary.,F. (2007 March 2007) . Back Pain. Retrieved on (December 23, 2010) from http:// www.americanpregnancy .org/ pregnancyhealth/back pain.html/.
- John Palsson. (2009 January 16). Back Pain in Pregnancy. Retrieved on (November 4, 2010) from http://www.article doctor.com/back pain/severe back pain during pregnancy/886/ .
- Karen. (2002 December 18).The Benefits of Exercise during Pregnancy. Retrieved on (January 7, 2011) from http://www.fit to deliver .com/fit-moa my-the benefits of exercise during pregnancy.html .
- Kelink. (2004 May 26). Statistics by Country for Back Pain. Retrieved on (March 23, 2011) from http://www.cureresearch .com/back pain-state-country.html.
- Kristiansson. (2006 May 16). Back Pain during Pregnancy. Retrieved on (November 27, 2011) from http:// journals.lww.com /spinejournal/abstract /1996/03150/back-pain-during-pregnancy-aprospective-study.8.aspx/ .
- Laura inverarity. (2007 November 8). Stretching. Retrieved on (October 4, 2010) from http: // www. mayoclinic. Com // .
- Robin eliseweiss. (2010 April 14). Pregnancy and Back Pain. Retrieved on (March 20, 2011) from http :// pregnancy. about. com/od/backache /a/back ache.htm/.
- Linda Mary. (2009 April 13). Benefit of Exercise in Mother and Baby. Retrieved on (June 16, 2011) from http://well. blog.nursingtimes .com /2011/13 / exercising for two/.

- Mchenzie. (2004 April 14). Mckenzie Statistics. Retrieved on (May 17, 2011) from http://express your health.com/docs/ studies.pdf/ .
- Mayo clinic staff. (2011 May 12). A Guide to basic 10 Stretches. Michael Devitt. (2005). Pregnancy related Low Back Pain. Retrieved on (June 15, 2011) from http: //www.massagetoday.com/mpacms //at /article/php/id=30315
- Martins. (2005 April 18). Physiotherapy to Usual Prenatal Care. Retrieved on (November 14, 2010) from http: // www.cfab.org/ hbns/archives/view support.doc /id / 400 .
- Mohseni – Bandpei. (2009 October 9). Low Back Pain in 1,100 Iranian Pregnant Women: Prevalence and Riskfactors. Retrieved on (December 5, 2010) from http:// www.ncbi.gov / pubmed/ 19574106.
- Montoya arizabaleta. (2010 June 28). Exercise during Pregnancy improves Health Related Quality of Life. Retrieved on (November 4, 2010) from www.ncbi. nlm.nih.gov /pubmed/21091415/ .
- Peter F Ullrich. (2010 September 29). Back Stretching Exercises for Pregnant Women. Retrieved on (March 4, 2011) from http: //www.spine health.com /wellness /exercise stretching-back pain relief//.
- Quaresma. (2010 January 26). Back Pain during Pregnancy a Longitudinal Study. Retrieved on (November 5, 2010) http://www. ncbi.gov/pubmed / 20975638 /.
- Requejo. (2002 August 12). The Use of a Modified Classification System in The Treatment of Low Back Pain during pregnancy. Retrieved on (April 26, 2011) from http: //www.ncbi.gov/ pubmed/12113460 /.

- Shim. (2005 January 16). Effects of a Back Pain reducing Program during Pregnancy for Korean Womens. Retrieved on (March 12, 2011) from http://www .ncbi .gov /pubmed/16386740/.
- Schoultz. (2011 August 8). New in the Literature –Pregnancy Related Back Pain. Retrieved on (January 27, 2011) from http://www.apta.org /ptinmotion/ newsnow /2011 /9/8 /newliterature/ .
- Seonae yeo. (2010 August 17). Regular Exercise among Women at Risk for Pre-Eclampsia. Retrieved on (November 5, 2010) from http://www.laborne .org /exercise/regularexerciseamongwomenat/riskofpreeclampsia// .
- Scerentc. (2011 June 2). Stretching for low back pain. Retrieved on (July 28, 2011) http://www. stretching-benefit /12/2011// .
- Shrish. (2010 June 22). Benefits of Stretching during Pregnancy. Retrieved on (November 3, 2010) from http:// www.fitday.com / fitness-articles/ fitness/ stretching/ benefits-of-stretching-during-pregnancy.html .
- Sonali. (2011 August 23). Back Pain Statistics are Frightening. Retrieved on (November 26, 2011) from http://www.backpain reliefnews.com /81/back pain-% -E2%, 80%, 46-the miracle – care.
- Stephen Montgomery. (2011 February 26). Back Pain in Pregnancy. Retrieved on (May 8, 2011) from http://www.spine-health.com /conditions/ lower-back-pain/back- pain-overview-a-guide-understanding-back-pain.
- Tonali. (2004 January 15). Back Pain in Pregnancy-1 Year Follow Up Care of Untreated Cases. Retrieved on (October 27, 2010) from http:// www.ncbi.gov /pubmed /15759172 .

- Wang. (2009 December 10). Low Back Pain during Pregnancy Prevalence Risk Factor and Outcome. Retrieved on (November 4, 2010) from http:// www .shu.ming. wang @yale.edu/.

APPENDIX A

Letter Seeking and granting Permission to Conduct the Study at Arisipalayam PHC Coimbatore.

ANNAI MEENAKSHI COLLEGE OF NURSING

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Ref. No. 002575

Date : April 1, 2011

To

The Deputy Director of Health Services,
219-Race Course Road,
Coimbatore – 18.

Respected sir,

Ms.Benita. T, is a student of II Year M.Sc.,(Nursing) in Annai Meenakshi college of Nursing, Coimbatore. She is conducting **" A STUDY TO ASSESS THE EFFECTIVENESS OF BACKSTRETCH EXERCISE IN REDUCING BACK PAIN AMONG ANTENATAL MOTHERS IN SELECTED RURAL PRIMARY HEALTH CENTRE AT COIMBATORE".**

This is for her research work to be submitted to the Tamil Nadu Dr. M.G.R. Medical University in partial fulfillment of the university requirement for the award of M.Sc.,(Nursing) Degree.

As a part of her study she would like to collect the data from the Antenatal Mothers in Arisipalayam and Pothanur Primary Health Centre The student will furnish project personally. The student will follow the norms, ethics and policies practiced in community setting.

Thanking you,

Permitted

Yours faithfully,

PRINCIPAL
Annai Meenakshi College of Nursing
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APPENDIX B

LETTER REQUESTING THE OPINION OF EXPERTS ON CONTENT VALIDITY OF THE TOOL.

ANNAI MEENAKSHI COLLEGE OF NURSING

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Website: www.annaimeenakshi.in

Ref. No.

Requisition for Content Validity

Date : .....

From

Ms. Benita. T.,
I - Year M.Sc(N)
Annai Meenakshi College of Nursing,
Coimbatore – 21.

Through
The Principal,
Annai Meenakshi College of Nursing,
Coimbatore – 21.

To

Respected Sir/Madam,

Sub: Requisition for expert opinion and suggestion for content validity of the tools – Reg.

I am a student of M.Sc., Nursing I year of Annai Meenakshi College of Nursing, Coimbatore, affiliated to The Tamil Nadu Dr. M.G.R. Medical University, Chennai. As a partial fulfillment of the M.Sc., Nursing programme. I am conducting **"A study to Evaluate The Effectiveness of Stretching Exercise in Reducing Back Pain among Antenatal Mothers in selected Rural areas at Coimbatore".** I am hereby enclosing the following:

1. Statement and objectives of the study
2. Hypotheses
3. Methodology
4. Tool
5. Intervention
6. Content Validity certificate.

Herewith I am submitting the developed tool for content validity and for expert opinion and possible suggestion. It will be grateful to you and request you to return the same to the undersigned at the earliest possible.

Thanking you,

Yours faithfully,

Place: Coimbatore
Date:

APPENDIX-C

LIST OF EXPERTS CONSULTED FOR CONTENT VALIDITY

Dr.Kunthavi Devi MBBS .DGO
Managing director,
Sreeabirami hospital,
Sundarapuram,
Coimbatore.

Dr.Radhika MBBS.DGO
Managing director,
R.R.Hospital,
Sundarapuram,
Coimbatore.

Prof .Mrs.Ester John M.sc Nursing.,
Principal,
Ganga College of Nursing,
Coimbatore.

Asso .Prof Mrs.Renuka M.sc Nursing
HOD,
KMCH College of Nursing,
Coimbatore.

Asso.Prof.Mrs.Renuka M.sc Nursing
HOD,
Sree Ramakrishna College of Nursing,
Gandhipuram ,
Coimbatore.

Mrs.CharmiliJayapriyaM.Sc Nursing
Principal,
Texity College of Nursing,
Podhanur,
Coimbatore.

Prof .Mrs. Latha M.sc Nursing
Principal,
RVS College of Nursing,
Sulur,
Coimbatore.

Mrs.Jansy M.sc Nursing
Lecturer,
PSG College of Nursing,
Peelamedu,
Coimbatore.

Prof.Mr.SallendranPhd.,
DJ Acadamy,
Malumichampatti,
Coimbatore.

APPENDIX – D

STRUCTURED INTERVIEW QUESTIONNAIRE

INSTRUCTIONS: Sample should hear the statement clearly and give correct response to the asked questions.

PART I

DEMOGRAPHIC AND OBSTETRIC VARIABLES

Sample no:

Date:

1. Age in years

   a.18 – 23 ( )

   b.24 – 29 ( )

   c.29 - 35 ( )

2. Education

   a. Primary ( )

   b. Middle ( )

   c. Higher Secondary ( )

   d. Degree or above ( )

3. Occupation

   a. Sedentary worker ( )

   b. Moderate ( )

4. Type of family

   a. Nuclear family ( )

   b. Joint family ( )

5. BMI

   a.20 – 26 – Normal ( )

   b. Less than 19 – Under weight ( )

   c. Greater than 27 – Obese ( )

6. Parity

a. Primipara ( )

b. Multi para ( )

7. Gestational age

a. 28-32 weeks ( )

b. 33-38weeks ( )

PART II

MODIFIED ROLAND MORRIS BACK PAIN QUESTIONNAIRE

Sl.no	Items	Never [1]	Rarely [2]	Occasionally [3]	Frequently [4]	Always [5]
1.	I stay at home most of the time because of my back pain.					
2.	I walk more slowly than usual because of my back pain.					
3.	Because of my back pain, I am not doing any jobs that I usually do around the house.					
4.	Because of my back pain , I am not able to involve in family activities.					
5.	Because of my back pain, I need help in most aspects of self care.					
6.	Because of my back pain, I have to hold onto something when getup from sitting.					
7.	Because of my back pain, I try to get other people to do things for me.					
8.	I get dressed more slowly than usual because of my back pain.					
9.	I stand up only for short periods of time because of my back pain.					
10.	Because of my back pain, I try not to bend.					
11.	I find it difficult to get out of a chair because of my back					

	pain.					
12.	I find it difficult to turn over in bed because of my back pain					
13.	I sleep less well because of my back pain.					
14.	Because of back pain, I am more irritable and bad tempered with people than usual.					
15.	I change positions frequently to try to get my back comfortable.					
16.	Because of my back pain, I can't carry or lift weights.					
17.	I can only walk short distances because of my back pain.					
18.	I stay in bed most of the time because of my back pain.					
19.	I sit down for most of the day because of my back pain.					
20.	I restrict travelling because of my back pain					

Scoring :

0% -20% (0-20) No pain

21% - 40% (21-40) Mild pain

41% - 60% (41-60) Moderate

61% - 80% (61-80) Severe

81% -100% (81-100) Extreme

¾¦nr®¡if E

gF½I

jftyhs® g¦¿a Égu«

F¿¥òf´ :

ftdkhfftÅ¤JrÇahdÉilianj®ªbjL¤J¡ Twî«.

kh½Ç v© :

1. taJ (tUl¤½±)

m) 18?23 ( )

M) 24?29 ( )

,) 29?35 ( )

2. f±É

m) bjhl¡f¡f±É ( )

M) ,ilÃiy¡ f±É ( )

,) ca®Ãiy¡f±É ( )

<) g£l¥go¥ò ( )

3. bjhÊ±

m) m§fmirÉ±yhciH¥ò ( )

M) Ãjhdkhdci H¥ò ( )

4. FL«g«

m) jÅ¡FL«g« ( )

M) T£L¡FL«g« ( )

5. ¾v«I

m) 19¡F« Fiwthf ( )

M) 20?26 (rÇahdmsî) ( )

,) 29¡F« m½fkhf ( )

6. jh-ikÃiy

m) jiy¥¾´is jh-ik ( )

M) x¬W¡Fnk± jh-ik ( )

7. fUî©lhd fhy¤½± ,UªJ ¾w¡F« fhy« tiufU¥igÆ± bfh©oU¤j±.

m) 28 ? 32 thu§f˝ ( )

M) 33? 38 thu§f˝ ( )

gF½II

t. v©.	c´sl¡f«	xUnghJ« ,±iy (1)	v¥bghG ?jhtJ (2)	¼y rka§fË± (3)	mo¡fo (4)	v¥bghGJ« (5)
1						
2	KJF tÈah± eh¬ gfÈ± bgU«ghY« å£onyna ,U¡»nw¬.					
3	KJF tÈah± eh¬ tH¡f¤ijÉlbkJthf el¡»nw¬.					
4	KJF tÈah± eh¬ å£o± tH¡fkhfbr-í« ntiyf´ vijí« br-t½±iy.					
5	KJF tÈah± eh¬ FL«gfhÇa§fË± <LgLt½±iy.					
	KJF tÈah± eh¬ Ra Jh-ikiank¦bfh´sk¦bwhUtÇ¬ JiziaehL»nw¬.					

t. v©.	c´sl¡f«	xUnghJ« ,±iy (1)	v¥bghG ?jhtJ (2)	¼y rka§fË± (3)	mo¡fo (4)	v¥bghGJ« (5)
6	KJF tÈah± vijahtJ ¾o¤J¡ bfh©Ljh¬ mk®ªj ÃiyÆÈUªJvGªJbfh´sKo»wJ. KJF tÈah± eh¬ v¬Dilantiyiak¦wt®f´					

7 8 9 10 11 12 13	Ky« br-É¡f Ka¦¼¡»nw¬. KJF tÈah± JÂ cL¤j eh¬ tH¡f¤ijÉl m½f neu« vL¤J¡ bfh´»nw¬. KJF tÈah± ¼¿J neu« k£Lnkv¬dh± Ã¦fKo»wJ. KJF tÈah± FÅtijjÉ®¡f eh¬ Ka¦¼¡»nw¬. KJF tÈah± eh¦fhÈÆÈUªJvGªJbfh´tj¦Fvd¡F¼ukkhf ,U¡»wJ. KJF tÈah± gL¡ifÆ± òu©LgL¥gj¦Fvd¡F ¼ukkhf c´sJ. KJF tÈah± eh¬ tH¡f¤ijÉlFiwthfntJh§F»nw¬.					
t. v©.	c´sl¡f«	xUnghJ« ,±iy (1)	v¥bghG ?jhtJ (2)	¼y rka§fË± (3)	mo¡fo (4)	v¥bghGJ« (5)
14 15	KJF tÈah± eh¬ k¦wt®fËl« tH¡f¤ijÉl m½fkhf vÇªJÉGtJl¬ ¼L¼Lbt¬W ,U¡»nw¬. v¬DilaKJifbrsfÇakhfit¤J¡ bfh´snt©L« v¬w Ka¦¼Æ± eh¬ Ã¦F« / mkU« /gL¡F« Ãiyiamo¡fokh¦¿¡ bfh´»nw¬. KJF tÈah± fzkhdbghU£fisv¬dh±					

	Jh¡fnthvL¤J¢ br±ynth ,ayÉ±iy. KJF tÈah± eh¬ Fiwªj Jhu«jh¬ el¡»nw¬. KJF tÈah± eh¬ bgU«ghyhdneu« gL¡ifÆ± ,U¡»nw¬.					
16	KJF tÈah± ehË¬ bgU«ghyhdneu« eh¬ c£fh®ªJjh¬ ,U¡»nw¬. KJF tÈfhuzkhfgaz« br-tij eh¬ jÉ®¡»nw¬.					
17						
18						
19						
20						

½U¤½ mik¡f¥g£lnuhyh©£ nkhÇµ KJFtÈ g¦¿a fU¤j¿í« nf´É¤jh´.

k½¥ÕL

21?40	:	nyrhf
41?60	:	msthf
61?80	:	m½fkhf
81?100	:	jh§fKoahjms

APPENDIX-F

EVALUATION CRITERIA CHECKLIST FOR VALIDATION OF TOOL

Respected Madam/Sir,

Instructions:

Kindly review the items in the tool. If you are agree with the criteria, please place a tick mark in "RELEVANT" column otherwise place the tick mark in "NEED MODIFICATION" column or "NOT RELEVANT" and give your comments in the remarks column.

SECTION A: DEMOGRAPHIC VARIABLES

SL. NO	ITEM	RELEVANT	NEEDS MODIFICATION	NOT RELEVANT	REMARKS
1.	Age in years				
2.	Education				
3.	Occupation				
4.	Type of family				
5.	onset of back pain				
6.	BMI				
7.	Weight				

SECTION B: OBSTETRIC VARIABLES

SL.NO	ITEM	RELEVANT	NEEDS MODIFICATION	NOT RELEVANT	REMARKS
1.	Gravida				
2.	Trimester				

SECTION C: MODIFIED ROLAND MORRIS BACK PAIN QUESTIONNAIRE

Sl.no	Items	Never [1]	Rarely [2]	Occasionally [3]	Frequently [4]	Always [5]
1.	I stay at home most of the time because of my back pain.					
2.	I walk more slowly than usual because of my back pain.					
3.	Because of my back pain, I am not doing any jobs that I usually do around the house.					
4.	Because of my back pain , I am not able to involve in family activities.					
5.	Because of my back pain, I need help in most aspects of self care.					
6.	Because of my back pain, I have to hold onto something when getup from sitting.					
7.	Because of my back pain, I try to get other people to do things for me.					
8.	I get dressed more slowly than usual because of my back pain.					
9.	I stand up only for short periods of time because of my back pain.					
10.	Because of my back pain, I try not to bend.					

11.	I find it difficult to get out of a chair because of my back pain.					
12.	I find it difficult to turn over in bed because of my back pain					
13.	I sleep less well because of my back pain.					
14.	Because of back pain, I am more irritable and bad tempered with people than usual.					
15.	I change positions frequently to try to get my back comfortable.					
16.	Because of my back pain, I can't carry or lift weights.					
17.	I can only walk short distances because of my back pain.					
18.	I stay in bed most of the time because of my back pain.					
19.	I sit down for most of the day because of my back pain.					
20.	My sex life is severely restricted because of my back pain					

0-20 - No pain

21-40 - Mild pain

41-60 - Moderate pain

61-80 - Severe pain

81-100 - Extreme pain

APPENDIX-G

INTERVENTION ON STRETCHING EXERCISE

Definition

Stretching Exercise

It is one of the effective exercises done during antenatal period by stretching the back to get relieved from back pain.

Importance of stretching exercise in pregnancy

- Restores and improves spinal function, resulting in decreased back pain.
- Reduces causes of back pain.
- Decreases muscle pain and strengthens back muscles.
- Relieves stress and tension in lower back.
- Increases blood circulation and strengthens muscles.
- Increasing range of motion.
- Increases oxygen supply throughout the body and reduces dizziness.

Pre requisites to perform stretching exercise

- Wear loose fitting, and comfortable clothes.
- Exercise on a flat, level surface to prevent injury.
- Finish eating before one hour before exercising.
- Drink water before, during and after exercising.
- After doing floor exercises, get up slowly and gradually to prevent dizziness.

Duration

- The exercise program of 30 minutes that includes 5 min of slow walking, 5 min general warm up, 5min of extension movements of back, 10 min of stretching exercise, 5 min return to the first position.
- Stretching exercise should be performed thrice a week for 2 weeks.

Steps to Perform Stretching Exercise

- Step -1 First perform slow walking for 5 minute.
- Step -2 Then gentle warm up exercises such as

  A. Deep breathing exercise

  - Sit comfortable in a chair with eyes closed and listen breathing.
  - Take deep breath through nose and exhale slowly through mouth.
  - A small pause in between the breathing and continue.
  - Repeat breathing exercise for 10 times.

  B. Ankle toe movements

  Sit comfortable in a chair and perform the following

  - Rotate the ankle and toe of right leg towards right side for 5 times and repeat towards left side for 5 minutes
  - Then flex and extend the ankle and toe of right leg for 5 times
  - Repeat the same on left leg ankle and toe and relax.
- Step – 3

  (a). Kneel in the floor with hands and knees.

  (b). Perform gentle extension movements by bending head forward and backward. Repeat it for 5 times.

(c). Take deep breathe in and pull in abdomen, arching spine upward. Hold the position for 5 counts

(d) Encourage to exhale by pulling stomach down to the floor, hollowing out back. And hold for 5 counts.

(e) Repeat the stretch for 10 times.

- Step –4 Return to the normal position and relax.

CONTRAINDICATION

- Bad obstetrical conditions
  - Bleeding or spotting
  - Low placenta
  - Threatened or recurrent miscarriage
  - Previous premature births or history of early labor
  - Weak placenta

Medical problem such as

- Asthma
- Heart disease
- High pressure
- Renal disorders

¾¦nr®¡if L

¾¦nr®¡if H

KJF j©Ltisª Jbr-í« cl¦gÆ¦¼

És¡fîiu :

,J f®¥¾Â bg©fS¡fhd ¼wªj KJF¤j©Ltisª Jbr-í« cl¦gÆ¦¼. ,JKJFtÈia¡ Fiw¤JtÈÃthuz« bfhL¡F«.

f®¥g fhy¤½± f®¥¾Âf´ br-í« gÆ¦¼Æ¬ K¡»a¤Jt« :

- KJF¤j©o¬ bra±gh£il¤ Jh©L»¬wJ.
- KJF tÈV¦gL« fhuz§fis¡ Fiw¡»¬wJ.
- jirtÈFiwªJ KJ»¬ jirfisgy¥gL¤J»¬wJ.
- Ñ³ KJ»¬ mG¤j¤ijmf¦W»¬wJ.
- ,u¤jX£l¤ij m½fÇ¤J jiria cW½¥gL¤J»¬wJ.
- mirîfis m½fÇ¡»¬wJ.
- R¤jkhdRthr¡fh¦iw cl± KGtJ« gut¢br-Jnrh®itmf¦W»¬wJ.

cl¦gÆ¦¼¡fhf br-ant©oait :

- js®ªj cil mÂª½U¡f nt©L«.
- rkjs¤½± cl¦gÆ¦¼ br-a nt©L«.
- czîc£bfh©l 1 kÂneu¤½¦F¥¾¬ cl¦gÆ¦¼ br-a nt©L«.
- cl¦gÆ¦¼ br-tj¦FK¬ò« ¾¬ò« Ú® mUªjnt©L«.
- jiu¥gÆ¦¼ br-j¾¬ nrh®itÚ¡Ftj¦fhfbkJthfvHnt©L«.

fhymsî :

,¥gÆ¦¼ 30 ÃÄl« br-a nt©L«. 5 ÃÄl« bkJthfelªJ«/ 5 ÃÄl« ò¤Jz®î gÆ¦¼fis¢ br-J« 5 ÃÄl« tisªJbr-í« gÆ¦¼ia br-J« ¾¬d® 5 ÃÄl« KJF j©LtisªJbr-í« cl± gÆ¦¼ia br-J« tunt©L«. ¾¬d® ,a±òÃiy¡F ½U«g nt©L«. ,²îl¦gÆ¦¼ia ,u©L thu¤½± MW Kiw br-a nt©L«.

f®¥¾Â¥ bg©fS¡Fbra±KiwiaÉs¡fî« :

go 1 : 5 ÃÄl« bkJthfel¡fnt©L«.

go 2 : ò¤Jz®îjU« gÆ¦¼fis¢ br-a nt©L«.

m. M³ªj Rthr¥ gÆ¦¼.

- tr½ahfc£fh®ªJ f©fis,o¡bfh©LRthr¡fh¦iwftÅ¡fnt©L«.
- Rthr¤ij,¡»¬ tÊahfc´ËG¤J ¾¬d® thÆ¬ tÊahfbtËna¦wnt©L«.
- ,¢R¥gÆ¦¼Æ¬ nghJ¼¿J ,ilntis É£L Û©L« gÆ¦¼ia br-a nt©L«.
- ,ªj ,¢R¥ gÆ¦¼ia¥ g¤JKiw br-a nt©L«.

M. fQ¡fh± mirî¥gÆ¦¼

- tr½ahfc£fh®ªJ gÆ¦¼ia ¾¬tUkhW br-a nt©L«.
- tyJfQ¡fh± Éu±fis IªJ KiwtyJg¡fkhf¢ NH¦wnt©L«. ¾¬d® ,njngh± ,lJg¡fkhfî« br-a nt©L«.
- ,lJ/ tyJfQ¡fh± k¦W« fh±Éu±fis IªJ Kiw kl¡» Ú£lnt©L«.

go 3 : m. iffisk¦W« KH§fh±fis¡ bfh©LjiuÆ± k©oÆl nt©L«.

M. bkJthfjiyiaK¬ò« ¾¬ò« IªJ Kiwtis¤J gÆ¦¼ br-a nt©L«.

,. ,¢R¥gÆ¦¼ br-tij¥ nghyRthr¤ijc´bfhz®ªJ KJifnknyca®¤j nt©L«. ,ªÃiyia IªJ v©Q« tiu it¤½U¡f nt©L«.

<. ¾¬d® ,¢R¡fh¦iwbtË¡ bfhz®ªJ tÆ¦iwc´nsÃy¤ijneh¡»¡bfh©Ltunt©L«.

KJF FÊªJ ,U¡fnt©L«. ,ªÃiyia IªJ v©Q« tiu it¤½U¡f nt©L«.

go 4 : ¾¬d® tH¡fkhdÃiy¡FtªJMRthr¥glnt©L«.

,ªj cl¦gÆ¦¼ia jÉ®¡fnt©oat®f´ :

f®¥g fhy¤½± jÉ®¡f nt©oam¿F¿f´

- ,u¤j¥ngh¡F.
- e¢R f®¥g¥igÆ¬ Ñ³□gF½Æ± ,U¤j±.
- fU ¼ij¤j±.
- K¬g¤j ¾urt« Fiw ¾urt« m±yJ v½®gh®¤j nj½¡F K¬ ¾urtkhj±.
- js®ªj f®¥g¥ig.

cl±ey¥ ¾u¢¼idf´

- Rthr¥ ¾u¢¼idf´
- ,Ujaneh-
- ,u¤j¡ bfh½¥ò
- ¼WÚ®¥ ¾u¢¼idf´

APPENDIX J
CONTENT VALIDITY CERTIFICATE

ANNAI MEENAKSHI COLLEGE OF NURSING

Affiliated with the Tamil Nadu Dr. M.G.R Medical University, Chennai.
Approved by the Indian Nursing Council, New Delhi &
Tamil Nadu Nurses and Midwives Council, Chennai.

Madukkarai Market Road,
P.B. No. 4431
Industrial Estate Post,
COIMBATORE - 641 021.

Phone : 0422 - 2675641, 2672705
Fax : 0422 - 2676016
Email : ceandct@dataone.in
ceandct@gmail.com
Website: www.annaimeenakshi.in

Ref. No.

Date : .....

Certificate of Validation

This is to certify that the tools developed by **Ms. Benita. T.,** M.Sc (N) I - Year student of Annai Meenakshi College of Nursing, Coimbatore, Tamil Nadu (Affiliated to The Tamil Nadu Dr.M.G.R. Medical University, Chennai) is validated by undersigned and can proceed with this tool and conduct the main study for dissertation entitled **"A study to Evaluate The Effectiveness of Stretching Exercise in Reducing Back Pain among Antenatal Mothers in selected Rural areas at Coimbatore"**

Place: Coimbatore

Signature

Date:

Name and Designation

APPENDIX-K

Check list criteria for sample selection to assess the antenatal mothers

Sample no:

Obstetrical score:

Gestational age:

Language known:

S.NO	ITEMS	YES	NO
1	I walk more slowly than usual because of my back pain.		
2.	I stand up only for short periods of time because of my back pain.		
3.	Because of my back pain, I have to hold onto something when getup from sitting		
4.	Because of my back pain, I am not doing any jobs that I usually do around the house.		
5.	I find it difficult to turn over in bed because of my back pain.		
6.	Because of back pain, I am more irritable and bad tempered with people than usual.		
7.	I stay in bed most of the time because of my back pain.		
8.	I can only walk short distances because of my back pain.		

Score < 5 indicates rejected as the study sample

Score >5 indicates selected as the study sample.

APPENDIX L

LETTER SEEKING CONSENT OF SUBJECTS FOR PARTICIPATION IN THE STUDY

Good morning, I am Ms. Benita.T doing M.sc nursing, IInd year in AnnaiMeenakshi College of Nursing, Coimbatore. I am doing research regarding a study to evaluate the effectiveness of stretching exercise in reducing back pain among antenatal mothers. I kindly request your co-operation and i assure that this intervention will not produce any side effects.

Mrs. …….. Myself had came to know about effectiveness of stretching exercise among antenatal mothers with back pain through Ms. Benita. T has been explained clearly about the effectiveness of this intervention. So i agree to participate in this research and giving my consent.

Signature

Date:

Place :

x¥òj± got«

k½¥¾¦FÇnahnu/

tz¡f«. eh¬ br±É. bgÅ£lh. j/ brÉÈa® JiwÆ± KJfiygo¥ò/ m¬id Ûdh£¼ brÉÈa® f±YhÇÆ± go¤J¡bfh©oU¡»nw¬. eh¬ KJF j©LtisªJbr-í« gÆ¦¼ia f®¥¾Â bg©f´ br-jh± mt®fS¡F c´s KJFtÈFiwí« v¬D« Muh-¢¼ia br-a c´ns¬. c§fSilafÅthdx¤JiH¥ignt©L»nw¬ k¦W« ,ªj M-th± j§fS¡FvªjxU gh½¥ò« V¦glhJv¬gijbjÇÉ¤J¡ bfh´»nw¬.

½U. / ½Uk½. .. .. v¬»w eh¬/ f®¥g¤½¬nghJ KJF j©LÃiytisªJbr-í« cl¦gÆ¦¼ br-jh± KJF tÈFiwí« v¬D« Muh-¢¼ia br±ÉbgÅ£lh. j/ mt®f´ br-a¥ngh»wh®f´ v¬gij eh¬ bjÇªJbfh©nl¬. vd¡F ,j¬ Éisîf´ e¬whfÉs¡f¥g£lJ. ,jdh± eh¬ ,ªj Kiwiaf¦W¡bfh´sx¥òj± mË¡»nw¬.

,l« : ifbah¥g«

eh´ :

APPENDIX-I

EVALUATION CRITERIA CHECKLIST FOR VALIDATION OF INTERVENTION ON STRETCHING EXERCISE

INSTRUCTION

The expert is requested to go through following evaluation criteria checklist prepared for validating the intervention on back stretch exercise for antenatal mother.

There are three columns given for responses and a column and facilitate your remarks in the remarks column given

INTERPRETATION COLUMNS

- Meets the criteria - Column I
- Partially meets the criteria - Column II
- Does not meet the criteria - Column III

SL.NO	CRITERIA	I	II	III	REMARKS
I.	CONTENT				
1.	SELECTION OF CONTENT				
1.1	Content reflects the objectives				
1.2	Content has up to date knowledge				
1.3	Content is comprehensive for the learning need of patients				
1.4	Content provides correct and accurate information				
1.5	Content coverage				
2.	ORGANIZATION OF CONTENT				
2.1	Logical sequences				
2.2	Continuity				
2.3	Integration				
II.	LANGUAGE				
1.	Local language is used in simple and in				

	understandable dialogues				
2.	Technical terms are explained at the level of learners ability				
III.	FEASIBILITY/PRACTICABILITY				
1.	Is suitable to the clients				
2.	Permit self learning				
3.	Acceptable to clients				
4.	Interesting and useful to clients				
5.	Suitable for setting				
IV.	ANY OTHER SUGGESTIONS				
	•				
	•				
	•				